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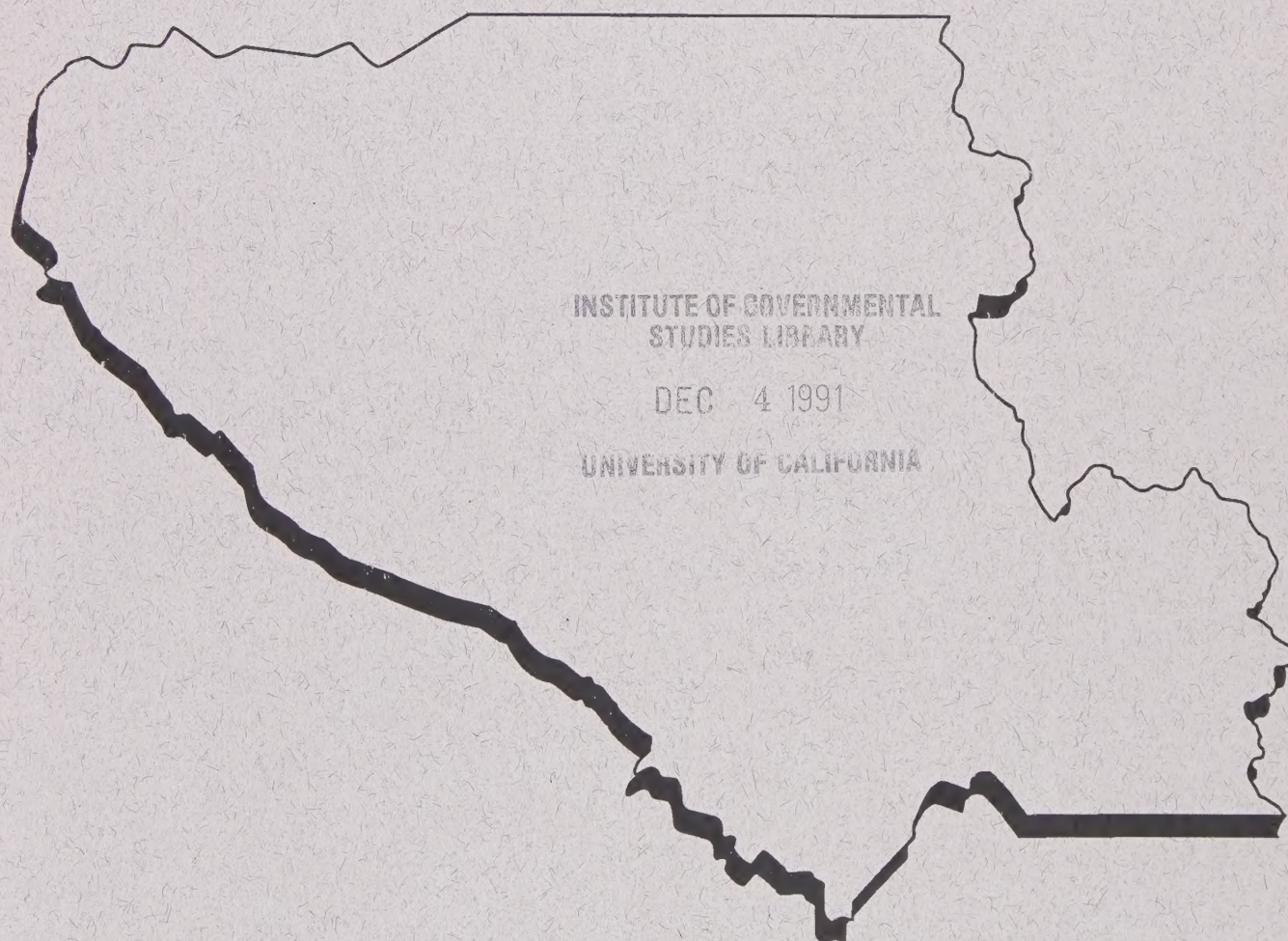
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Vol. 1 of 2

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# Santa Clara County Hazardous Waste Management Plan



*August 1991*

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# **Santa Clara County Hazardous Waste Management Plan**



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SANTA CLARA COUNTY  
HAZARDOUS WASTE MANAGEMENT PLAN

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## CHAPTER 1

### INTRODUCTION AND SUMMARY

#### INTRODUCTION

The economic well-being and quality of life we enjoy in California is in many ways dependent upon the production and use of manufactured goods. One consequence of the production and use of such products is the generation of hazardous waste. Hazardous waste ranges from familiar substances, such as solvents and waste oil, to compounds such as polychlorinated biphenyls (PCBs) and dioxins. Over 10,000,000 tons of hazardous waste are generated each year in California. Ironically, it is precisely these manufacturing processes we depend upon which generate the wastes, that if mismanaged, can pose a threat to public health and safety and the environment.

California's system for managing hazardous waste has relied heavily upon land disposal of untreated hazardous wastes. State law already bans the disposal of untreated wastes in pits and lagoons, and will soon apply to injection wells and surface impoundments as well. By 1990, hazardous waste will have to be treated before it is disposed of on land. This means that new treatment methods and facilities will have to be developed and approved to pretreat hazardous waste before the remaining residuals are placed in a new type of hazardous waste management facility known as a residuals repository.

Throughout California, the difficulty of siting new hazardous waste management facilities has been a constraint to the development of an effective hazardous waste management system. This difficulty has been due primarily to public opposition and the ability of local governments to reject facility proposals for reasons other than technical safety. The 1984 amendments to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), which created the Superfund, requires each state to provide assurance to the federal Environmental

Protection Agency (EPA) that adequate capacity exists to handle the state's hazardous waste treatment/disposal needs for the next 20 years. Should the state not provide adequate assurance, Superfund dollars for cleaning up contaminated sites could be withheld. Such state and federal legislation breaks from the traditional "end of the pipe" methods of pollution control. There is greater awareness that we no longer can afford to merely shift hazardous waste disposal to another environmental media. This multi-media approach heralds a new era of awareness and concern over how we deal with our hazardous waste management needs.

Despite such state and federal legislation, however, California still lacked a mandate for the siting of hazardous waste management facilities. In response, in September 1986 the State legislature passed AB 2948 (the "Tanner Bill"), requiring the establishment of County hazardous waste management policy and programs. Sponsored by Assemblywoman Sally Tanner, the Tanner Bill established a process whereby all 58 counties in California, regional councils of government, and the State were provided an opportunity to develop County Hazardous Waste Management Plans (CHWMPs).

In February 1987, on the heels of the Tanner Bill came passage of SB 477 (the Greene Bill), an amendment to Sections 25135.1 and 25137.7 of the Health and Safety Code relating to hazardous wastes. The Greene Bill requires each city within each county to take one of the following actions within 180 days of the CHWMP's approval:

- Adopt a city hazardous waste management plan
- Incorporate the CHWMP into the city's general plan
- Enact an ordinance requiring that land use decisions be consistent with the specified portion of the CHWMP, thereby imposing a state-mandated local program

In addition, SB 477 allows cities to enforce more stringent requirements than those outlined in their county's CHWMP, if necessary, to reflect geologic, biologic, economic, and other characteristics which may be unique to a jurisdiction.

The function of CHWMPs is to promote the evaluation of local hazardous waste management issues and needs, and to make recommendations to better protect public health and safety and the environment while maintaining the economic viability of the state. To achieve these goals, the locally approved hazardous waste management plans are intended to compliment local and state planning efforts through the adoption of consistent criteria for the approval or disapproval of proposals to site commercial off-site hazardous waste management facilities. The benefits of developing a plan include (1) a systematic method for evaluating proposals to site hazardous waste management facilities; (2) the establishment of clear, consistent criteria to protect public health, safety and welfare; and (3) the provision of countywide policies and implementation measures to better manage and reduce hazardous waste generation.

In Santa Clara County, the cities of Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale have joined with the County to jointly develop a comprehensive and coordinated approach to hazardous waste management planning. The following goals have been adopted by the County and its cities and are intended to guide future hazardous waste management activities in Santa Clara County:

Goal 1:

To protect public health, safety, and the environment, whenever feasible, by reducing or eliminating the generation of hazardous waste as expeditiously as possible through the adoption and implementation of the hierarchy of hazardous waste management priorities by hazardous waste generators, including large industry, small quantity generators, local government, and households.

Goal 2:

To maintain the economic competitiveness of Santa Clara County and the State by siting only those facilities which are necessary, and which safely, economically and responsibly manage the hazardous waste needs of the county.

## PURPOSE

The Santa Clara CHWMP establishes a public policy framework to direct Santa Clara County's hazardous waste management efforts. The Plan includes the adoption of a consistent set of criteria for evaluating proposals to site commercial hazardous waste management facilities in Santa Clara County. Participation in regional planning efforts will also be necessary to site facilities of a size and type to serve a larger market service area. Equally important to facility siting issues, the development of policies and programs to reduce the volume and toxicity of the hazardous waste generated in the county is a primary goal of the Plan. Waste reduction is the most preferred waste management approach and involves either reducing the amount of waste being produced, recycling the amount of waste being produced, or reusing the waste as feedstock in the manufacturing process. Other key components of the Plan include the development of a local database on waste generation and management, and the establishment of a systematic review process whereby the potential environmental and health effects of site-specific facility proposals are evaluated through an environmental impact report and/or risk assessment. In summary, the CHWMP is intended to serve as the primary document guiding decisions and providing the information necessary for local industry, government, and the public to take appropriate steps to safely manage, reduce, recycle, treat, and dispose of hazardous wastes.

## ON-SITE VERSUS OFF-SITE FACILITIES

The Tanner legislation applies only to new commercial off-site hazardous waste management facilities, or expansions to existing commercial off-site facilities if the expansion requires a hazardous waste facility permit, a local land use permit, and an EIR. All elements of this Plan apply to proposals for new off-site facilities which serve more than one producer of hazardous waste, or expansions of existing off-site facilities if local approval, such as a change in a use permit, zoning or general plan change, is necessary (see Government Code Title 7 commencing, with Section 65000

for full listing of activities which require local approval action). "Significantly expand or modify" means to expand or modify an existing off-site hazardous waste facility in a manner such that a land use decision and an environmental impact report (EIR) are required. No person shall establish or expand an off-site facility unless the legislative body of the city or county in which the new off-site facility, or the expansion of an existing off-site facility, is proposed makes a determination that the facility or expansion is consistent with the CHWMP.

On-site facilities are those hazardous waste management facilities which are only permitted to meet the hazardous waste needs of the company for which the permit is issued. This does not preclude the shipping of hazardous wastes produced at a different location of the same company to the on-site facility for proper treatment or disposal. The permit process for new or existing on-site facilities is not governed by the approval process established by this Plan or AB 2948 (Tanner). The major difference between a proposal for an on-site versus off-site facility is that the on-site project usually involves an activity for which hazardous waste management is an incidental (not primary) activity, while an off-site facility is primarily engaged in the management of hazardous waste. Thus the local decision making process for a project which includes an on-site hazardous waste management facility focuses on the primary intended use (e.g. chip manufacturing) as opposed to that portion of the project that involves hazardous waste treatment on-site. However, both on-site and off-site facilities will be required to obtain a hazardous waste management facility permit from the State Department of Health Services (DHS) and meet all requirements to protect health, safety, and the environment and locally imposed conditions for approval of the proposed land use.

## **PLAN DEVELOPMENT**

The need to develop a countywide hazardous waste management plan was triggered by a number of related events. There was a growing awareness that the generation of hazardous waste brought with it a host of issues including (1) concern over the

environmental and health impacts from continuing the existing methods of treating and disposing of hazardous waste; (2) the need to site and develop new hazardous waste management facilities; (3) local opposition to siting new facilities has in some instances, virtually stopped new capacity from being developed; and (4) great potential liabilities for past, present, and future hazardous waste management and disposal practices. In response to these concerns, local, state and federal law makers have passed a number of new laws, such as those mentioned previously, which govern the area of hazardous materials and waste.

The State committed to providing financial support to assist counties in preparing their CHWMPs. In addition, DHS provided technical guidelines ("Guidelines for the preparation of Hazardous Waste Management Plans") to be used for the preparation of CHWMPs. The legislation identified key areas that should be contained in the plan including the following eight elements:

- (1) A statement of goals and policies for the siting of hazardous waste facilities and the management of wastes through the year 2000.
- (2) An analysis of the hazardous waste stream generated in the county.
- (3) A description of the existing hazardous waste facilities and their current capacity.
- (4) An identification of hazardous waste facilities that can be expanded and of general areas for new facilities.
- (5) A determination of the need for additional hazardous waste facilities.
- (6) A consideration of the need to manage hazardous waste produced by businesses and households.
- (7) An analysis of the potential for reducing and recycling hazardous waste, and for reducing the toxicity of the waste at the source of generation.
- (8) A schedule which describes County and city actions necessary to implement the hazardous waste management plan through the year 2000, including the assigning of dates for carrying out the actions.

Although the guidelines are advisory, they do reflect a legislative mandate to responsibly manage hazardous waste in California and are the basis for DHS approval or disapproval of a CHWMP. The Santa Clara County Hazardous Waste Management Plan includes these elements as suggested by DHS. Ultimately, under AB 650, DHS will also prepare a statewide hazardous waste management plan, the purpose of which is to coordinate and enhance the CHWMP's of all 58 counties to ensure that statewide hazardous waste management needs are met.

Guidance for the preparation of Santa Clara's CHWMP was also provided by the Santa Clara County Hazardous Waste Management (Tanner) Advisory Committee. The eleven member committee consists of representatives from the Board of Supervisors, several city councils, the semiconductor and manufacturing industries, public interest groups, environmental groups, and special districts. A Technical Advisory Committee and a number of subcommittees also provided staff with additional guidance during the Plan preparation. The Plan development process provided an opportunity for local, regional, and state agencies, as well as the general public, to comment on and assist with the preparation. A schedule of public participation opportunities and actions during the Plan development stage is provided in Appendix I-A.

## DEFINITIONS

For purposes of this plan, we shall define "hazardous waste" as a waste or combination of wastes which, because of its quantity, concentration, or physiochemical or infectious properties, may either increase mortality or produce irreversible or incapacitating illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

The Environmental Protection Agency has established four characteristics that substances can be tested for to determine if they are hazardous wastes:

- **Ignitability** - the ability to catch fire
- **Corrosivity** - the ability to wear away or destroy other materials, including human tissue
- **Reactivity** - the ability to enter into a violent chemical reaction, which may involve explosion or fumes
- **EP (Extraction Procedure) Toxicity** - the ability to release certain toxic constituents when leached with a mild acid

These attributes obviously cover a large number of substances commonly used for industrial processes in Santa Clara County. It also includes everyday items such as paint, pesticides, waste oil and household cleaners that are used on a regular basis. This report does not address problems related to nuclear wastes, which come under federal regulation, or municipal solid waste, which is discussed in the Santa Clara County Solid Waste Management Plan.

## **SUMMARY OF CHAPTERS**

### **Chapter 1: Introduction and Summary**

Chapter 1 briefly describes the current issues and problems associated with hazardous waste management, providing the context necessary to understand the need for development of local hazardous waste management plans. The chapter also explains the Plan's purpose and legislative intent, and individually summarizes the various chapters.

### **Chapter 2: Goals, Policies and Objectives**

Chapter 2 summarizes the goals, policies and objectives guiding the County's hazardous waste management efforts, which are intended to maintain and improve the quality of life in Santa Clara County. Programs and strategies to reduce the amount of hazardous waste produced in this county are complimented with a carefully designed approval process that acknowledges the need for certain types of new hazardous waste management facilities. Working together as partners, local government and industry can join in an effort to keep this county's economy strong and still maintain the environmental qualities that have attracted people to this area.

### **Chapter 3: Current Hazardous Waste Generation**

Chapter 3 looks at current waste generation. The analysis of current waste generation required collecting data from a variety of sources, including the Department of Health Services' Uniform Hazardous Waste Manifest system ("manifest"), existing reports and studies, and direct contact with individual generators throughout the county. While every effort was made to assure accuracy and completeness, lack of available data for some categories (e.g., site clean-up efforts) made precise documentation impossible.

The primary purpose of this waste generation analysis is to identify the current waste streams (i.e., amount and type(s) of waste) in Santa Clara County that require off-site treatment and disposal capacity. Wastes that were treated on-site, estimated to be over 1 million tons annually, were not rigorously investigated due to time and resource constraints.

Table 1-1 provides an estimate of the total waste generated in the county in 1986 (excluding wastes treated on-site). This estimate includes manifested waste shipped off-site, as well as estimates for waste generated by small businesses (generating one ton or less per month) and households. Note that manifested waste reflects only those wastes that were shipped to off-site hazardous waste management facilities. In contrast, the estimates for small quantity generators and households represent waste generation and not necessarily waste that was manifested and shipped off-site.

**TABLE 1-1. TOTAL WASTE GENERATION IN SANTA CLARA COUNTY USING MANIFEST DATA AND ESTIMATE/ SURVEY METHODS, 1986**

	<u>TONS</u>
MANIFESTED	87,430
(ESTIMATED) SMALL QUANTITY GENERATORS <sup>1</sup>	52,000
(ESTIMATED) HOUSEHOLD HAZARDOUS WASTE <sup>2</sup>	1,610

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<sup>1</sup>estimate based on "no-survey" method

<sup>2</sup>estimate based on number of households in county

**TABLE 1-2. SOURCES OF (MANIFESTED) HAZARDOUS WASTE  
GENERATED IN SANTA CLARA COUNTY, 1986**

<u>INDUSTRY GROUP</u>	<u>TONS</u>	<u>% OF TOTAL</u>
ELECTRONIC EQUIPMENT	22,270	25
SEMICONDUCTOR PROD.	14,420	16
ELECTRIC, GAS, SANITARY	13,890	15
TRANSPORTATION	7,920	9
CHEMICAL PRODUCTS	6,600	8
PETROLEUM REFINING	4,680	5
FABRICATED METAL PROD.	2,410	3
MISC. INDUSTRIES	15,240	17
<b>TOTAL</b>	<b>87,430</b>	<b>100</b>

Table 1-2 provides a summary of the source and amount of (manifested) hazardous waste generated and shipped off-site in Santa Clara County in 1986. Not surprisingly, over 40% of the waste shipped off-site can be attributed to electronics equipment and semi-conductor production, reflecting the prominent role of "high-tech" industries in the county. These industries typically generate significant volumes of solvents, organic liquids, metals in liquid solutions, and organic sludges and solids (see Table 1-3).

As mentioned earlier, estimates of additional waste not accounted for by the manifest system range from 52,000 tons for small quantity generators to 1,640 for household hazardous waste. Factoring in these additional figures, estimates for waste generation in 1986 may be as high as 141,000 tons. Chapter 3 provides a detailed discussion on the adjustments that were made to more accurately assess current waste generation as well as forecast future estimates.

**TABLE 1-3 COMPOSITION OF (MANIFESTED) WASTE GENERATED  
IN SANTA CLARA COUNTY, 1986**

<u>WASTE GROUP</u>	<u>TONS</u>
WASTE OIL	11,200
HALOGENATED SOLVENTS	2,280
NON-HALOGENATED SOLVENTS	11,750
ORGANIC LIQUIDS	8,930
PESTICIDES	20
DIOXINS	730
OILY SLUDGES	4,730
HALOGENATED ORGANIC SLUDGES & SOLIDS	430
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	2,750
DYE & PAINT SLUDGES AND RESINS	1,640
METAL-CONTAINING SLUDGES	4,200
METAL-CONTAINING LIQUIDS	14,430
NON-METALLIC INORGANIC SLUDGES	1,130
NON-METALLIC INORGANIC LIQUIDS	8,710
CYANIDE & METAL LIQUIDS	30
CONTAMINATED SOIL	5,580
MISC. WASTE	8,890
<b>TOTAL</b>	<b>87,430</b>

Santa Clara County is currently a net exporter of hazardous waste. Of the 87,430 tons of manifested waste shipped off-site in 1986, 75% (65,570 tons) was exported for treatment and disposal to other counties within the State. The remaining 25% was treated and disposed within the county, sent out-of-state, or categorized as "unknown".

**TABLE 1-4. SUMMARY OF IMPORTED AND EXPORTED  
(MANIFESTED) HAZARDOUS WASTE, 1986 (Tons)**

**(MANIFESTED) WASTE GENERATED IN SANTA CLARA COUNTY  
WHICH WAS:**

TREATED/DISPOSED LOCALLY	10,550
TREATED/DISPOSED OUTSIDE COUNTY	66,460
TREATED/DISPOSED UNKNOWN	10,420
<b>TOTAL</b>	<b>87,430</b>

**TREATMENT/DISPOSAL OF (MANIFESTED) WASTE IN  
SANTA CLARA COUNTY WHICH WAS:**

GENERATED LOCALLY	10,550
GENERATED OUTSIDE COUNTY	3,670
GENERATED FROM UNKNOWN SOURCES	1,680
<b>TOTAL</b>	<b>15,900</b>

As Table 1-4 illustrates, almost 16,000 tons were treated and/or disposed of in the county, of which about 65% was generated locally. The remaining 35% was imported from other counties in California or from out-of-state.

See Appendix I-B for a list of DHS recommended tables and corresponding tables in the Plan.

**Chapter 4: Wastes Posing Special Management Challenges: SQG, Household,  
Designated and Infectious Wastes**

Chapter 4 provides a background discussion on wastes that pose special management challenges. This chapter covers waste that is generated by small quantity generators and households, and both designated and infectious waste streams.

## **Chapter 5: Projected Hazardous Waste Generation**

Chapter 5 focuses on projected waste generation. The Association of Bay Area Governments (ABAG) developed a methodology to estimate future hazardous waste streams based on the correlation between economic activity and the amount of waste generation (i.e., increased economic activity equals increased waste generation). The model uses projected economic output levels (by industrial sector) in the county for the year 2000 to predict waste generation levels for that year.

Based on this model hazardous waste generation in Santa Clara County is expected to reach 127,500 tons per year by the year 2000. This estimate assumes that waste will be generated at the same rate per unit of output in 1986, and that no significant technological changes or waste reduction will occur with new or existing businesses. Waste reduction efforts, however, could lower this figure by 10% to 40%. Table 1-5 illustrates the potential overall impact of "moderate" (10%) and "aggressive" (40%) waste reduction efforts on the volume of waste projected for the year 2000.

## **Chapter 6: Hazardous Waste Management Options**

Chapter 6 focuses on the need for facilities and strategies to effectively manage the county's hazardous waste streams. Fourteen permitted off-site commercial hazardous waste facilities are currently available in Santa Clara County. In 1986, these facilities served to treat, recycle, recover or stabilize approximately 16,000 tons of hazardous waste. None of the 14 facilities were used to capacity, indicating that treatment methods, to some extent, do not correlate with the types of waste that are generated locally.

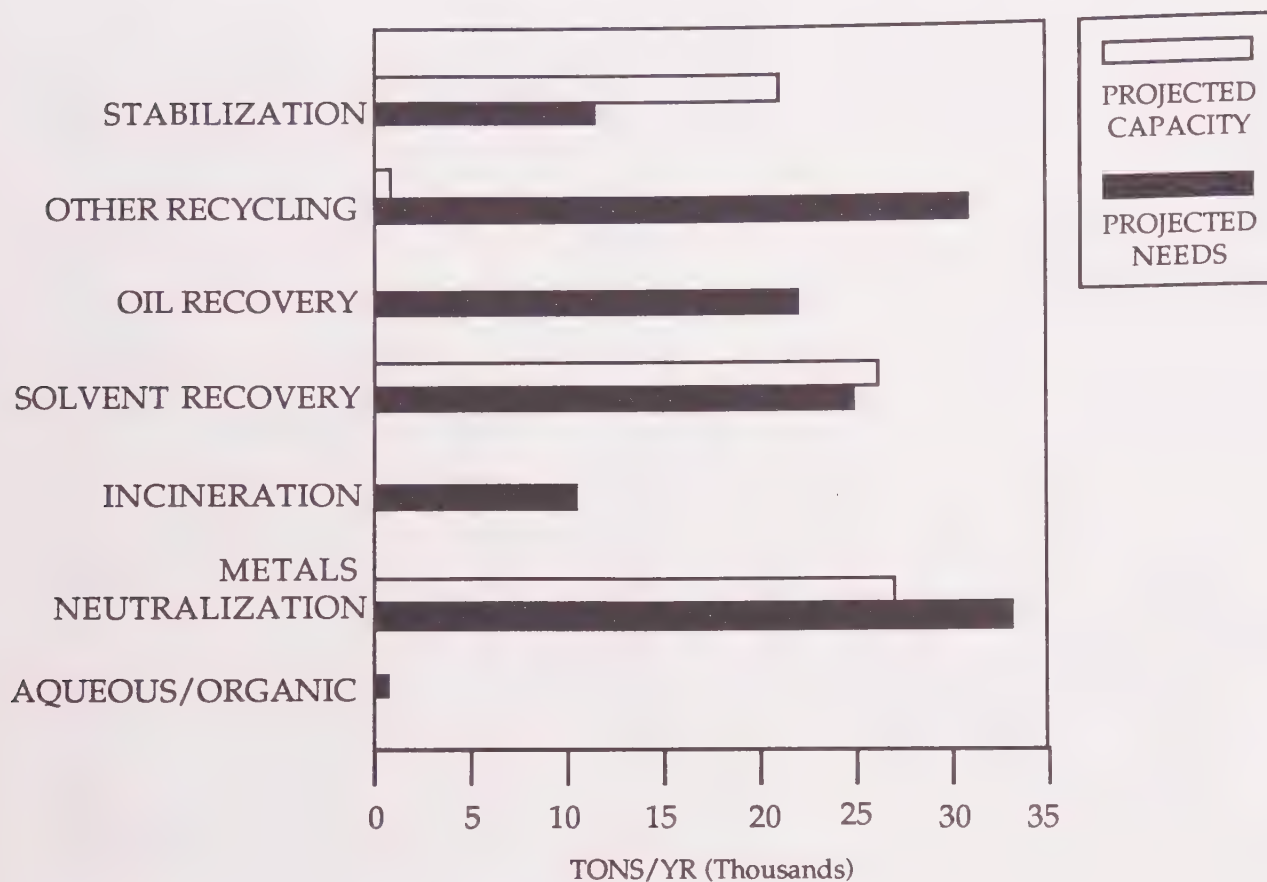
Projected hazardous waste management capacity in the county for the year 2000, even with source reduction efforts, indicates a shortfall will occur in a number of general treatment methods, including incineration, oil recovery, aqueous treatment,

**TABLE 1-5. HAZARDOUS WASTE GENERATION PROJECTIONS BY WASTE GROUP IN SANTA CLARA COUNTY FOR THE YEAR 2000**

Waste Group	-----Estimated Tons-----		
	No Reduction	10% Reduction	40% Reduction
Waste Oil	14,840	13,360	8,900
Halogenated Solvents	4,080	3,670	2,450
Non-Halogenated Solvents	21,170	19,050	12,700
Organic Liquids	18,620	16,758	11,172
Pesticides	30	20	20
Dioxins	870	790	520
Oil Sludges	7,570	6,820	4,540
Halogenated Organic Sludges & Solids	560	500	340
Non-Halogenated Organic Sludges/Solids	3,770	3,390	2,260
Dye & Paint Sludges & Resins	2,010	1,810	1,200
Metal-containing Sludges	7,310	6,580	4,390
Metal-containing Liquids	20,730	18,660	12,440
Cyanide & Metal Liquids	50	50	30
Non-Metallic Inorganic Liquids	12,850	11,560	7,710
Non-Metallic Inorganic Sludges	1,690	1,520	1,020
Contaminated Soil	0	0	0
Miscellaneous Wastes	11,360	10,220	6,820
<b>TOTAL</b>	<b>127,510</b>	<b>114,760</b>	<b>76,510</b>

Source: ABAG

**TABLE 1-6. PROJECTED CAPACITY AND NEEDS FOR OFF-SITE FACILITY CAPACITY IN SANTA CLARA COUNTY, Year 2000**



metals neutralization, and "other recycling". Table 1-6 compares the projected need and capacity for off-site commercial facilities in Santa Clara County for the year 2000.

The projected capacity shortfall could be met either by continued reliance on facilities outside the county, or by the development of additional facilities within the county. The market decision as to which approach (or approaches) will be used to serve the needs of county generators will depend largely on the availability and cost of treatment and disposal capacity outside the county versus the economic feasibility of developing new facilities in the county.

## **Chapter 7: Hazardous Waste Reduction**

Given the information presented in the previous chapter, Chapter 7 then focuses on alternative methods to reduce the amount of hazardous waste that is produced by large generators, such as manufacturing firms or public facilities, small quantity generators such as neighborhood automobile repair shops or dry cleaners, and households. Waste reduction is the lessening, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored or disposed. It focuses on reducing wastes within the manufacturing process, primarily through the use of better operational practices, process changes, and the use of less- or non-hazardous materials. By utilizing such practices, the volume and toxicity of future waste generation in the county can be reduced.

To encourage waste reduction practices, the County has adopted as its top priority the reduction of hazardous waste generation — by large companies, small businesses, households, and public facilities — whenever feasible and as expeditiously as possible. As Table 1-5 illustrates, the degree to which policies and incentives are utilized to encourage waste reduction will greatly reduce the projected volume of waste. Reduced waste generation in turn will lead to a lessening of the overall need for additional hazardous waste management facilities.

## **Chapter 8: Siting of Hazardous Waste Management Facilities**

In order to responsibly manage the large and varied hazardous waste streams generated in Santa Clara County, it may be necessary to site one or more new off-site commercial facilities within the county. Chapter 8 discusses the criteria that will be used to guide local decisions on siting new hazardous waste facilities.

The general type(s) of hazardous waste management facilities would include:

- **transfer and storage facilities**, which provide a location for collecting and consolidating wastes prior to treatment
- **treatment facilities**, which absorb, precipitate, recycle, resource recover, neutralize, distill, stabilize and/or incinerate
- **residuals repositories**, which are specially designed (long term) disposal sites for residuals from treated wastes.

In response to this potential need, criteria have been developed which provide a planning context for siting new facilities. The siting criteria establishes certain constraints, standards and guidelines to be used in evaluating proposed sites and are designed to ensure that, should a facility be developed, it will be located and constructed so as to pose the least threat to public health and safety and the environment. The siting criteria are to be used whenever evaluating a proposal to site and construct a new off-site commercial facility or substantially expanding an existing off-site facility.

While siting criteria are instrumental in determining the suitability of potential sites, local land use authorities (Planning Department, Planning Commission, City Council, Board of Supervisors) will continue to be the primary reviewers and decision-makers for approving the location of proposed new facilities. However, AB 2948 requires a Local Advisory Committee (LAC) be formed whenever a proposal is filed. The LAC is an advisory body that would represent the interest of the affected community(s) and negotiate with the proponent on the provisions of and conditions for project approval. In addition, AB 2948 created a State Appeal Board that has the authority to overturn the local land use decision if it finds that the local decision was not based on environmental or health related factors. This Board is required to consider regional needs as well as local needs in making its decision.

By applying the siting criteria to a countywide land use map, general areas have been identified within the county which may be suitable for locating hazardous waste management facilities. It is important to note that the siting map does not provide detailed, site specific locations, nor does it vest any rights; rather, it is intended to demonstrate that areas exist within the county which appear to meet the siting criteria. As a result, even within the areas shown on the map, a proposal would need to conduct expensive site-specific investigations as well as consider any local planning conditions.

## **Chapter 9: Hazardous Waste Transportation Issues**

Chapter 9 focuses on various issues that result from the transportation of hazardous wastes on our highways and by rail.

## **Chapter 10: Hazardous Waste Legislation and Regulation**

Chapter 10 describes existing programs, legislation, and agencies which deal with hazardous materials and wastes.

## **Chapter 11: Implementation Program**

Implementation issues and strategies are detailed in Chapter 11. This discussion includes an analysis of opportunities for funding new programs and establishes target dates for program implementation.

## **Chapter 12: Environmental Impact Report (EIR)**

This chapter provides an assessment of the potential environmental impacts due to the Plan implementation.

## **Chapter 13: Negative Declaration**

This chapter provides an assessment of the potential environmental impacts due to modifications to the Plan necessary for resubmittal and approval.

### **Appendices (Appendix I-A through XI-A)**

Appendices I-A through XI-A present a detailed discussion of various aspects of this CHWMP, including: a description of hazardous waste management facilities, local approval process for siting a hazardous waste management facility, household hazardous waste collection day programs in the County, definitions of various waste types and land disposal sites, and examples of uniform hazardous waste manifests.

## **CONCLUSION**

The CHWMP represents a responsible approach to managing hazardous waste in Santa Clara County, and will play an important role in sustaining this county's economic base while also assuring the protection of public health and safety and the environment. Such efforts to successfully manage hazardous waste, however, will require both private and public sector involvement and cooperation. The private sector will need to meet regulatory requirements such as state and federal land disposal bans. Hazardous waste generators, particularly large business, will focus on methods for reducing their waste generation. Private developers will be responsible for proposing the siting and expansion of environmentally and economically feasible hazardous waste management facilities.

At the same time, public sector involvement will be needed to assist in achieving maximum waste reduction by providing information and assistance, especially to small quantity generators. And finally, in the event the response from private developers is not adequate to meet the off-site facility needs of the county's generators, local government will actively solicit proposals to site needed facilities.

## CHAPTER 2

### GOALS, POLICIES AND OBJECTIVES

#### INTRODUCTION

Santa Clara County is a major generator of hazardous waste within the State of California. The types and quantities of waste that we generate is a function of our life styles and our industrial base. Responsive and responsible hazardous waste management is a necessary ingredient in sustaining the quality of life in this county.

This chapter lists the goals, policies and objectives that have been adopted by the County and its cities to guide the safe and economical management of hazardous waste generated in this county. The two major goals that have been adopted to guide the development of this Plan are listed under Chapter One. One goal deals with public health, safety and the environment, and the other addresses the issue of economic competitiveness. The various policies are listed by chapter, and then Chapter Eleven identifies the implementation objectives and recommended activities necessary to implement those policies. Background discussions are provided within the body of the relevant chapter.

#### SUMMARY BY CHAPTER

##### **Chapter 1: Introduction and Summary**

##### Goal 1:

To protect public health, safety, and the environment, whenever feasible, by reducing or eliminating the generation of hazardous waste as expeditiously as possible through the adoption and implementation of the hierarchy of hazardous waste management priorities by hazardous waste generators, including large industry, small quantity generators (SQGs), local government, and households.

## Goal 2:

To maintain the economic competitiveness of Santa Clara County and the State by siting only those facilities which are necessary, and which safely economically and responsibly manage the hazardous waste needs of the county.

## **Chapter 2: Goals, Policies and Objectives**

Not applicable.

## **Chapter 3: Current Hazardous Waste Generation**

### Policy:

This County shall share information pertaining to intercounty movement of hazardous wastes with other counties. The information to be shared includes:

- Quantities and types of hazardous waste imported and exported to and from the county.
- Off-site commercial hazardous waste management facility capacity including impending actions that would significantly reduce or expand capacity.
- Changes in hazardous waste generation patterns such as new industries or changes in local regulations that would result in a significant increased need for out-of-county disposal.
- Annual summaries of the hazardous waste manifest data and out-of-state shipments which will be provided by California Department of Health Services to all counties to facilitate intercounty information sharing.

## **Chapter 4: Wastes Posing Special Management Challenges: SQG, Household, Designated and Infectious Wastes**

There are no policies in Chapter 4.

## **Chapter 5: Projected Hazardous Waste Generation**

There are no policies in Chapter 5.

## **Chapter 6: Hazardous Waste Management Options**

### Policy 1:

Hazardous waste management facilities which are sited within the county shall be designed and sized, consistent with the waste reductions goals identified in the Plan, to meet the needs of generators within this county and to meet the County's or individual cities' commitments under interjurisdictional agreements consistent with local planning criteria as determined by the local permitting authority.

### Policy 2:

It is the County's policy that the Fair Share language contained in this Plan is only operative in conjunction with interjurisdictional agreements.

## **Chapter 7: Hazardous Waste Reduction**

### Policy 1:

All generators of hazardous waste in the county including commercial, industrial and public facilities, shall prepare and implement a waste reduction plan which utilizes the hierarchy of hazardous waste management practices and best available technology and management techniques to achieve maximum feasible waste reduction as part of a local governmental approval process.

### Policy 2:

The County shall develop an industry-public-government partnership which increases the ability of all generators to reduce and manage hazardous wastes safely and economically.

### Policy 3:

The County shall encourage alternative waste management practices for small generators in accordance with the Hazardous Waste Management Hierarchy.

### Policy 4:

The County and the cities shall coordinate the development of a program for the proper management and disposal of household hazardous waste on a countywide basis in accordance with the Hazardous Waste Management Hierarchy and coordination with existing programs and conditions.

#### Policy 5:

The County, in coordination with cities, shall initiate a public education campaign which will inform all county residents about the potential hazards associated with household products, how to dispose of them safely, and safe substitute products and practices that can be used in place of some household hazardous products.

### **Chapter 8: Siting of Hazardous Waste Management Facilities**

#### Policy 1:

All proposals to site a hazardous waste facility shall assure compatibility with neighboring land uses and be consistent with the appropriate permitting jurisdiction's General Plan, local land use permitting process, and the CHWMP.

#### Policy 2:

Areas designated for industrial uses by the applicable General Plan may be appropriate for hazardous waste management facilities if, during the development review process, it is determined that such a use would be compatible with existing and planned land uses in the vicinity of the site. Urbanized areas designated for industrial uses are not appropriate for siting residuals repositories.

#### Policy 3:

As determined by the permitting jurisdiction, all proposals for new and expanded hazardous waste management facilities must provide adequate mitigation for identified environmental impacts.

#### Policy 4:

A risk assessment shall be conducted for inclusion in an environmental impact report (EIR) if the local jurisdiction determines that a risk assessment is required based on local staff's analysis of the completed risk assessment checklist in consultation with the Local Assessment Committee (LAC).

#### Policy 5:

All proposals for hazardous waste facilities shall be consistent with plans and policies of regional regulatory agencies (i.e. Air Quality Management District, and the Regional Water Quality Control Board) that protect air and water quality.

#### Policy 6:

The representation on the Local Assessment Committee will include a representative from the community adjoining the jurisdiction in which the facility is proposed whenever the adjoining community may be adversely affected by the proposal in question.

## **Chapter 9: Hazardous Waste Transportation Issues**

### Policy 1:

Transportation of hazardous waste from the point of origin to the appropriate hazardous waste management facility shall be by the most direct legal route, utilizing state or interstate highways whenever feasible, and shall minimize distances along residential and other nonindustrial frontages to the fullest extent feasible.

### Policy 2:

Hazardous waste management facilities shall where feasible, be located at sites which minimize the risks associated with the transportation of hazardous waste. Residuals repositories may be located more distant from waste generation sources than other types of facilities given their need for larger land areas.

### Policy 3:

Transportation routes to and from hazardous waste facilities shall be designated as part of the permitting process so as to minimize negative impacts on surrounding land uses.

### Policy 4:

All transportation routes shall be demonstrated to be safe with regards to road design, construction, traffic controls and signage.

### Policy 5:

All new facilities shall conduct site specific transportation analysis to determine the potential impacts on proximate traffic capacity.

## **Chapter 10: Hazardous Waste Legislation and Regulation**

There are no policies in Chapter 10.

## **Chapter 11: Implementation Program**

Chapter 11 includes a series of implementation objectives and recommended activities that will be utilized to implement the policies identified in this Plan. These objectives are divided into four areas: waste reduction; hazardous waste

management/facility siting; public education and involvement; and program coordination and compliance with regulatory requirements. Each of the four program areas is guided by a set of implementation objectives and includes a set of activities, recommended implementing agencies, and schedules that will be used to meet the stated objectives. Under “waste reduction,” four general goals encompass the specific accomplishments and objectives which follow. Potential funding options are also discussed.

### Waste Reduction:

#### Goal 1:

To encourage industry to utilize hazardous waste reduction practices as well as to develop waste reduction plans.

#### Goal 2:

To address the needs of small quantity generators for information on available waste reduction techniques and regulatory compliance, technical assistance, capitalization, and convenient waste exchange and recycling services.

#### Goal 3:

To investigate manufacturing processes and operational practices which produce hazardous waste at public facilities such as airports, transportation agencies, and general services agencies, and identify waste reduction opportunities.

#### Goal 4:

To provide more accessible household hazardous waste education and collection services which will reduce the amount of household hazardous waste which is improperly disposed of "down the drain" and in to our municipal solid waste landfills (further addressed in the “Public Education and Involvement” section of this chapter).

Implementation objectives follow:

- WR1     Form and utilize waste reduction advisory group to promote information exchange and dissemination and technology transfer.
- WR2     Prepare and disseminate industry-specific information on waste reduction techniques, practices and case examples such as fact sheets, newsletters, mailings, media articles and programs, and videos.

- WR3 Provide information and training regarding compliance, alternative waste reduction and management strategies and available resources by responding to phone inquiries (hotline), cosponsoring seminars and technology transfer workshops.
- WR4 Establish procedures to publicize accurate information about waste reduction activities through the media and other channels.
- WR5 Provide waste reduction information to local inspectors to disseminate during existing inspections.
- WR6 Establish an information clearinghouse or resource library to collect, process, and distribute the latest research and literature on waste reduction assistance.
- WR7 Prepare and disseminate examples of waste reduction plans as well as information about their utility to hazardous waste generators.
- WR8 Work with trade and business organizations to develop process or industry-specific resource materials and workshops which focus on specific waste reduction practices, and help to develop a self-assessment capacity for small generators from a specific industry, e.g. metal platers or printed circuit board shops.
- WR9 Spur development of cooperative ventures to provide access to alternative waste reduction/management practices especially for small generators (e.g. centralized recycling unit for a geographic cluster of small generators that can pool their wastes).
- WR10 Work to develop an ongoing capacity to provide waste reduction technical assistance at the county level by training appropriate staff and providing an institutional "home" for this capability.
- WR11 Encourage joint industry-government and private ventures to achieve greater waste reduction.
- WR12 Utilize the newly established waste reduction advisory group to work with financial institutions to provide local access to and packaging of loans to be used for waste reduction purposes.
- WR13 Explore feasibility of and develop access to alternatives waste reduction and management practices, especially for small generators (e.g. local waste exchange, chemical supplier buy back program).
- WR14 Coordinate efforts to win joint industry-government grants (from state and federal agencies and private sources) for demonstration projects.

- WR15 Collect, provide and disseminate information on the economic benefits of waste reduction investments and publicize the availability of loans and loan guarantees for waste reduction projects.
- WR16 Examine possible tax or other financial incentives which might be instituted to encourage companies to move further "up the hierarchy" of waste management practices.
- WR17 All hazardous waste generators in the county shall prepare and implement a waste reduction plan which utilizes the hierarchy of hazardous waste management practices, and best available technology and management techniques to achieve maximum feasible waste reduction as part of a local governmental approval process.
- WR18 Investigate the feasibility of requiring waste reduction plans as a prerequisite to obtaining loans and loan guarantees for waste reduction projects.
- WR19 Reexamine existing permit programs for small modifications which would encourage waste reduction efforts.
- WR20 Explore options for negotiating alternative penalties and/or training requirements in pending enforcement cases.
- WR21 Consider the institution of fee breaks, loan priorities, extended phase-in periods for regulatory compliance, and technical assistance for firms that are actively developing and implementing waste reduction plans and programs.
- WR22 Encourage the adoption of targeted waste reduction priorities, standards, and goals as information on economically feasible waste reduction practices become available on a process or industry-specific basis.
- WR23 Present and publicize awards or certificates of recognition from the Board of Supervisors to firms with successful waste reduction programs and to firms that have aided other businesses in developing waste reduction efforts.
- WR24 Encourage the development of company recognition programs for employees that have implemented successful waste reduction practices in the plant.
- WR25 Establish and maintain a baseline database regarding waste reduction planning and achievement.

Hazardous Waste Management/Facility Siting:

- HW1 The County will plan for and work with other jurisdictions to provide needed capacity for wastes that cannot be reduced or eliminated within the plant or manufacturing process.

- HW2 Siting criteria and a clear local development process (as laid out in Chapter 8) will be utilized to negotiate with site developers and to evaluate proposals for hazardous waste management facilities.
- HW3 Hazardous waste management facilities which are sited within the county shall be designed and sized to meet the needs of generators within the county or to meet the County's or individual cities' commitments under interjurisdictional agreements consistent with local planning criteria as determined by the local permitting authority.
- HW4 All proposals for hazardous waste management facilities shall be consistent with plans and policies of regional regulatory agencies (i.e. Air Quality Management District, and Regional Water Quality Control Board) that protect air and water quality.
- HW5 All proposals shall be consistent with the appropriate permitting jurisdiction's General Plan, local land-use permitting process, and this Plan.
- HW6 Hazardous waste management facility risk assessments required by a local jurisdiction for inclusion in an environmental impact report (EIR) must identify both acute and chronic risks to public health and safety in an understandable manner.
- HW7 The County will actively participate in negotiations with other counties in the ABAG region to develop interjurisdictional agreements regarding appropriate hazardous waste management capacity allocations.
- HW8 The County will set up an ongoing mechanism which will be used for local government and industry to share needed information concerning hazardous waste management needs (i.e. new treatment standards for specific waste streams, permit-by-rule regulations for specific treatment practices); and which will increase the ability of all generators to reduce and manage wastes safely and economically.
- HW9 The County shall involve industry groups and representatives in efforts to improve the level of public understanding about hazardous waste/materials issues.
- HW10 The County will explore the possibility of providing needed assistance to generators in the permitting or expansion of on-site facilities for waste streams that cannot be reduced or recycled economically.

- HW11 The County and cities will encourage the safest and most effective use of existing and new hazardous waste management facilities by developing and providing information on the "best available management practices" and improper practices for unique waste streams such as infectious wastes or designated wastes.

Public Education and Involvement:

- PE1 The County and cities shall coordinate the development of a program for the proper management and disposal of household hazardous waste on a countywide basis in accordance with the waste management hierarchy and considering existing programs and conditions.
- PE2 The County, in coordination with the cities, shall initiate a public education campaign which will inform all county residents about the potential hazards associated with household products, how to dispose of them safely, and safe substitute products and practices that can be used in place of hazardous substances.
- PE3 The County, in coordination with the cities and industry, shall engage in direct public education concerning hazardous waste reduction and management such as workshops, utilization of the media, school programs, and information dissemination.

Program Coordination and Compliance with Regulatory Requirements:

- PC1 Maintain, strengthen, and update the City-County Hazmat Agreement to coordinate efforts of all local hazardous materials and waste management programs.
- PC2 Utilize a multimedia approach to regulatory and educational program development, e.g. create task force to examine means to utilize multimedia approach to minimize undue duplication of inspection efforts.
- PC3 Cross-train regulatory program inspectors so that they can recognize fundamental violations involving all media (e.g. air, water, and land).
- PC4 Build incentives for waste reduction and proper waste management into hazardous materials and waste programs and program fee structures.
- PC5 Consider the development of and offer of a waste management/reduction training course as an alternative (or partial alternative) to enforcement fines for first time violators of municipal codes and regulatory requirements.

- PC6 Require that facilities submit a waste reduction/management plan as part of the local governmental approval process, and that they perform internal reviews of their hazardous waste and materials practices to identify opportunities for reducing waste generation.
- PC7 Enhance public facilities' compliance by promoting internal review of waste management practices and providing appropriate facility assessment guidelines and technical assistance/resources.
- PC8 The County and cities will develop a model ordinance which will be used to provide uniform implementation of this Plan's policies and strategies.
- PC9 The County and cities shall examine existing and proposed hazardous materials and waste programs and program fee structures (with the intention of building in incentives to reduce waste) to avoid duplication of effort and confusion to generators.
- PC10 The County and cities shall monitor and evaluate sources of data and information on waste management as they become available.
- PC11 The County and cities shall provide for annual evaluations of progress toward achieving implementation objectives identified in this Plan.
- PC12 The County shall improve its capability to track state and federal toxics/hazardous materials/waste legislation and to provide periodic summaries and notices of important developments to the Intergovernmental Council and County and city staffs.
- PC13 The County shall provide for updates of the hazardous waste management plan every three years or as needed based upon changes in data or industry needs and patterns, progress in intercounty agreements, amount of capacity available, and revised estimates of waste reduction potential.

## **Chapter 12: Environmental Impact Report (EIR)**

There are no policies in Chapter 12.

## **Chapter 13: Negative Declaration**

There are no policies in Chapter 13.



## CHAPTER 3

### CURRENT HAZARDOUS WASTE GENERATION

#### INTRODUCTION

This Chapter provides estimates of hazardous waste generation in Santa Clara County. For purposes of discussion, the waste stream has been divided into separate categories which reflect their source of generation. By far the greatest source of hazardous waste generation is the industrial sector of our economy. Over 1500 generators shipped waste off-site for treatment and disposal in the county. Approximately 30 of these firms accounted for over 70% of the total industrial waste generation. Approximately 1400 of these firms generated less than 1000 kg (1.1 tons) per month. These firms are referred to as small quantity generators (SQGs). The smallest per capita waste generators are the thousands of households that generate hazardous waste through the use of household products such as used motor oil, pesticides, and solvents.

While much of the household wastes stream is disposed in sanitary land fills, many of the large industrial firms treat their hazardous waste on-site. In a 1983 report entitled "Statewide Assessment of Hazardous Waste Management Facility Siting Requirements", it was estimated that 87% of all industrial hazardous waste is managed on-site and the remainder is sent off-site for treatment and disposal. Applying the statewide average to Santa Clara County suggests that over one million tons of hazardous waste was treated on-site in the county as compared to the 87,430 tons that were manifested and shipped off-site in 1986. Over 75 percent of the county's manifested waste was sent to other counties within California for treatment and disposal. Conversely, other counties shipped 5,350 tons of hazardous waste to this county for treatment and disposal.

In addition to industrial (manifested) waste, two other sources of hazardous waste generation are leaking underground tanks and contaminated sites. As leaking underground fuel tanks are identified and site remediation begins, there may be a need for off-site disposal. It is expected that a small but indeterminate amount of the material will go to Class I facilities or to incinerators. However, the general trend is toward on-site volatilization and subsequent disposal at Class III facilities or to bioremediate on-site. Waste from one-time cleanup events from non-fuel tanks is expected to decrease or become negligible since the Countywide requirement of double containment or monitoring of all such tanks was passed in the mid 1980's.

Wastes generated by households and SQGs deserve attention because of special problems they pose for responsible waste management. Although the quantities involved do not represent a substantial part of the total waste stream, household hazardous waste (HHW) is important because of the proximity of this waste stream to residential areas and the problems it may create when disposed of in sanitary landfills or illegally dumped. SQG waste represents a substantial portion of the total industrial waste stream. This waste stream is also important because generators are not always informed about proper handling and disposal of hazardous materials and wastes.

This Plan does not address problems associated with radioactive or municipal solid waste, but does address issues regarding designated and infectious waste. These two classes of waste require additional discussion because current management practices treat these wastes as hazardous wastes, thus affecting their treatment and disposal capacity.

During the development of the Hazardous Waste Management Plan it became evident that each county was generating substantial information on its waste generation and management needs. In addition, information relative to other counties was also analyzed. In recognition of the interdependence between generators and hazardous waste management facilities and the need for county and

out-of-county data, the County has adopted the following policy relative to intercounty information sharing:

Policy:

"This County shall share information pertaining to intercounty movement of hazardous wastes with other counties. The information to be shared includes:

- Quantities and types of hazardous wastes imported and exported to and from the county.
- Off-site commercial hazardous waste facility capacity including impending actions that would significantly reduce or expand capacity.
- Changes in hazardous waste generation patterns such as new industries or changes in local regulations that would result in a significant increased need for out-of-county disposal.
- Annual summaries of the hazardous waste manifest data and out-of-state shipments which will be permitted by the California Department of Health Services (DHS) to all counties to facilitate intercounty information sharing.

The remainder of this Chapter will provide information on hazardous waste generated by the various types of generators described above, and data sources used to develop estimates of the quantities of waste generated.

## DATA SOURCES

In order to obtain as complete a picture of Santa Clara County's hazardous waste stream, the following sources of information were utilized:

- (1) Data provided by the DHS from the Uniform Hazardous Waste Manifest was the primary source of data for industrial generators who utilized the hazardous waste manifest system.
- (2) The "no survey method" outlined in the Technical Reference Manual (TRM) to the Hazardous Waste Management Plan was used to estimate waste produced by small quantity generators.
- (3) The U.S. Bureau of the Census Publication 1985 County Business Patterns was used to determine the number of businesses in Santa Clara County.

- (4) The "no survey method" based on studies conducted in Marin County and the Phoenix, Arizona Garbage Project was used to estimate the type and quantity of hazardous waste generated by households.
- (5) Estimates on the amount of waste generation from the cleanup of contaminated sites and leaking underground tanks were developed by the County.
- (6) All numbers in the tables have been rounded off to the nearest increment of ten. For this reason some figures may not add up to 100% when the numbers are converted to percentages.

For purposes of this report, it is assumed that the data and information presented is at best a starting point. Although efforts were made to assure accuracy and completeness, it was not possible to reach every firm or individual that we attempt to contact. Additionally, there was little detailed information about the volume of waste generation as a result of contaminated site cleanups. For these reasons the data should be viewed as a general indicator of trends or direction. Hazardous waste management is a dynamic and changing field. We can and did experience considerable changes in treatment capacity with the closing of the IT facilities in Solano and Contra Costa Counties. With changing technology and stronger regulatory pressures we can expect further changes in the types and amounts of hazardous wastes that will be produced and require treatment.

Waste groups used in this Plan do not preclude the use of new waste groups (e.g. infectious waste) in the needs assessments of future amendments to the Plan. Amended Plans may also be required to enhance the analysis of selected waste streams (e.g. out-of-state shipments, pretreatment sludges, etc.) See Appendix III-A for a listing of the California waste categories and DHS waste groups used in the Plan.

## **IDENTIFICATION OF WASTE STREAM BY MAJOR SOURCES**

The following section provides estimates on the amount and type of wastes generated in this county by source of generation. The distinctions are important because the data used to develop these estimates varied greatly in terms of quality

and quantity. For example, the DHS manifest data provides the most complete picture of wastes that are shipped off-site. However, it is generally acknowledged that the person filling out the manifest is not always careful in precisely identifying the waste being shipped nor do the waste categories on the manifest provide adequate characterization of specific wastes. For all the problems attendant to the use of manifest data, it is still more reliable than estimating waste generation for Santa Clara County based on surveys conducted in other parts of the country, i.e. the "no survey method".

An important fact should be kept in mind as numbers from various sources of waste are compared. The waste generation figures from the DHS manifest system reflect only those wastes that were shipped off-site and entered into the DHS Management Information System. Wastes that were treated on-site are not included. Estimates of wastes generated by SQGs, households, contaminated sites, and leaking underground tanks represent estimates of **waste generation** and not necessarily of wastes that will be manifested and shipped off-site. Precise data on the proportion of these wastes that are currently manifested is not known at this time.

### **Wastes Shipped Off-Site (Manifested Wastes)**

According to federal and state law, all hazardous waste shipped off-site by a generator must be recorded with DHS in the form of a manifest (See Appendix III-B for sample manifest). The manifest form must be completed by the generator and signed by both the generator and the licensed transporter before the waste is shipped off-site. The manifest must contain the generator's name, address, phone number and EPA identification number; the name and EPA number of each transporter; a description including quantity and type of each hazardous waste; and the name, address and identification number of the facility which will receive the waste for treatment, storage or disposal. DHS must receive a copy of each manifest, for wastes that were shipped off-site within California. No information is available in this system for those wastes which are managed on-site.

Based on information from the 1986 DHS manifest system, approximately 1500 generators reported about 87,430 tons of hazardous waste shipped off-site. The DHS manifested waste is comprised of waste that are generated as part of a normal process e.g. hazardous waste produced as a byproduct of a wafer manufacturing process, and wastes that are generated on an exception, or one-time basis such as the removal of asbestos from a school building. Table 3-1 provides detailed information on hazardous waste shipped off-site in 1986 by Santa Clara County Generators. The first column "Waste Group" aggregates various wastes that have similar attributes into 17 different categories. The second column provides information on the number of tons that were shipped off-site. Five waste groups (waste oil, non-halogenated solvents, organic liquids, metal-containing liquids, and non-metallic inorganic liquids) comprise almost 2/3 of the total tons shipped in 1986. The final column is the Generalized Treatment Method that would be used to manage the particular waste group (Appendix III-C for Generalized Treatment Method for Each Waste Group).

The assignment of each waste group to a Generalized Treatment Method was provided in the Technical Reference Manual developed by DHS. This matching is necessary in order to determine our current and projected shortfall or surplus in treatment capacity for each of the waste groups generated in the county.

The waste group category "miscellaneous waste" is comprised of a number of wastes which do not readily fall into the major waste categories (See Table 3-1a). For purposes of this Plan it was necessary to estimate the types of generalized treatment methods that are applicable to this waste group. For 1986, detailed manifest data was available for all of the waste categories that are part of miscellaneous waste groups. It was then possible to assign each waste a generalized treatment method. This level of detail was not available for estimates of waste generation by households or small quantity generators. For these generators, it was necessary to estimate the proportion of total miscellaneous waste group that would require different treatment methods.

**TABLE 3-1. QUANTITIES OF (MANIFESTED) HAZARDOUS WASTE SHIPPED OFF-SITE IN 1986 BY SANTA CLARA COUNTY GENERATORS**

<b>Waste Group</b>	<b>Total Tons of Manifested Waste Shipped Off-site</b>	<b>General Treatment Method</b>
Waste Oil	1,200	Oil Recovery
Halogenated Solvents	2,280	Solvent Recovery
Non-Halogenated Solvents	11,750	Solvent Recovery
Organic Liquids	8,930	Other Recycling
Pesticides	30	Aqueous Treatment -Organic
PCBS & Dioxins	730	Incineration
Oily Sludges	4,730	Oil Recovery
Halogenated Organic Sludges & Solids	420	Incineration
Non-Halogenated Organic Sludges & Solids	2,750	Incineration
Dye & Paint Sludges & Resins	1,640	Incineration
Metal-containing Liquids	14,430	Aqueous Treatment Metal/Neutralization
Cyanide & Metal Liquids	40	Aqueous Treatment Metal/Neutralization
Non-Metallic Inorganic Liquids	8,710	Aqueous Treatment Metals/Neutralization
Metal-containing Sludges	4,200	Stabilization
Non-Metallic Inorganic Sludges	1,130	Stabilization
Contaminated Soil	5,580	Incineration
Miscellaneous Wastes	8,880	See next page
<b>TOTAL</b>	<b>87,430</b>	<b>N.A.</b>

**TABLE 3 - 1a. MISCELLANEOUS (MANIFESTED) WASTE SHIPPED OFF-SITE IN 1986 BY SANTA CLARA COUNTY GENERATORS**

California Waste Category	Tons of Manifested Miscellaneous Waste Shipped Off-site	General Treatment Method
141 Off-spec, Aged or Surplus	110	Other Recycling
151 Asbestos-Containing Waste	1,140	Stabilization
162 Other Spent Catalyst	10	Stabilization
172 Metal Dust	60	Other Recycling
181 Other Inorganic Solid Waste	3,490	Other Recycling
311 Pharmaceutical Waste	60	Stabilization
322 Biological Waste other than Sewage Sludge	10	Aqueous Treatment- Organic
331 Off-spec, Aged or Surplus Organics	130	Other Recycling
511 Empty Pesticide Containers 30 gal	10	Other Recycling
512 Other Empty Containers 30 gal	1,570	Other Recycling
513 Empty Containers 30 gal	980	Other Recycling
541 Photochemicals/Photoprocessing Waste	400	Other Recycling
551 Laboratory Waste Chemicals	750	Other Recycling
561 Detergent and Soap	70	Other Recycling
581 Gas Scrubber Waste	30	Aqueous Treatment- metals/neutralization
591 Baghouse Waste	10	Stabilization
612 Household Wastes	50	Other Recycling
<b>TOTAL</b>	<b>8,880</b>	<b>N.A.</b>

Utilizing 1986 manifest data, the total tons for each Generalized Treatment Method in the miscellaneous waste group was divided by the aggregate tons for the entire waste stream. For 1986, the percent distribution of Generalized Treatment Method for miscellaneous wastes were 9.4% for stabilization and 90.6% for other recycling.

Table 3-2. and Table 3-2a. reflect an adjustment to the 1986 manifest data which excludes all one time shipments of waste. This adjustment was made to reflect the more regularly recurring sources of waste. These adjusted figures were also used to forecast future estimates of waste generation. As seen in Figure 3-1, the types of waste shipped off-site reflect the heavy emphasis on electronics equipment and semiconductor production. These industries use and produce significant volumes of solvents, organic liquids, metals in liquid solutions, and organic sludges and solids. In 1986 thirty-three of the largest generators accounted for about 70% of the county's total manifested waste. As shown in Table 3-3, the majority of firms who manifested over 500 tons of waste in 1985 have reduced the amount of wastes shipped off-site in 1987. The general trend indicates that a reduction in waste generation has occurred over the three year period and that the largest industrial generators have achieved reductions in their manifested waste during a period of economic growth.

### **Import/Export**

Santa Clara County is a net exporter of hazardous waste. As can be seen in Table 3-4, 76,880 tons of the total amount of hazardous waste manifested and shipped off-site in 1986 was exported to other counties within California. Most of the exported waste was transported to Contra Costa, Kings, and Santa Barbara County. Contra Costa County is the site of the IT Facility. The Kettleman Hills Facility, operated by Chemical Waste Management, Inc. is located in Kings County and the Casmalia Facility is located in Santa Barbara. Approximately 10,500 tons or 12 % remained in Santa Clara and an additional 5,350 tons were received from other counties.

**TABLE 3-2. ADJUSTED\* QUANTITIES OF HAZARDOUS WASTE SHIPPED OFF-SITE IN 1986 BY SANTA CLARA COUNTY GENERATORS**

Waste Group	Tons* of Manifested Waste Shipped Off-site	General Treatment Method
Waste Oil	11,050	Oil Recovery
Halogenated Solvents	2,090	Solvent Recovery
Non-Halogenated Solvents	11,690	Solvent Recovery
Organic Liquids	8,870	Other Recycling
Pesticides	20	Aqueous Treatment -Organic
PCBS & Dioxins	670	Incineration
Oily Sludges	4,470	Oil Recovery
Halogenated Organic Sludges & Solids	420	Incineration
Non-Halogenated Organic Sludges & Solids	2,300	Incineration
Dye & Paint Sludges & Resins	1,640	Incineration
Metal-containing Liquids	14,330	Aqueous Treatment Metal/Neutralization
Cyanide & Metal Liquids	40	Aqueous Treatment Metal/Neutralization
Non-Metallic Inorganic Liquids	8,650	Aqueous Treatment Metals/Neutralization
Metal-containing Sludges	4,200	Stabilization
Non-Metallic Inorganic Sludges	1,120	Stabilization
Contaminated Soil	3,850	Incineration
Miscellaneous Wastes	8,060	see table next page
<b>TOTAL</b>	<b>83,470</b>	<b>N.A.</b>

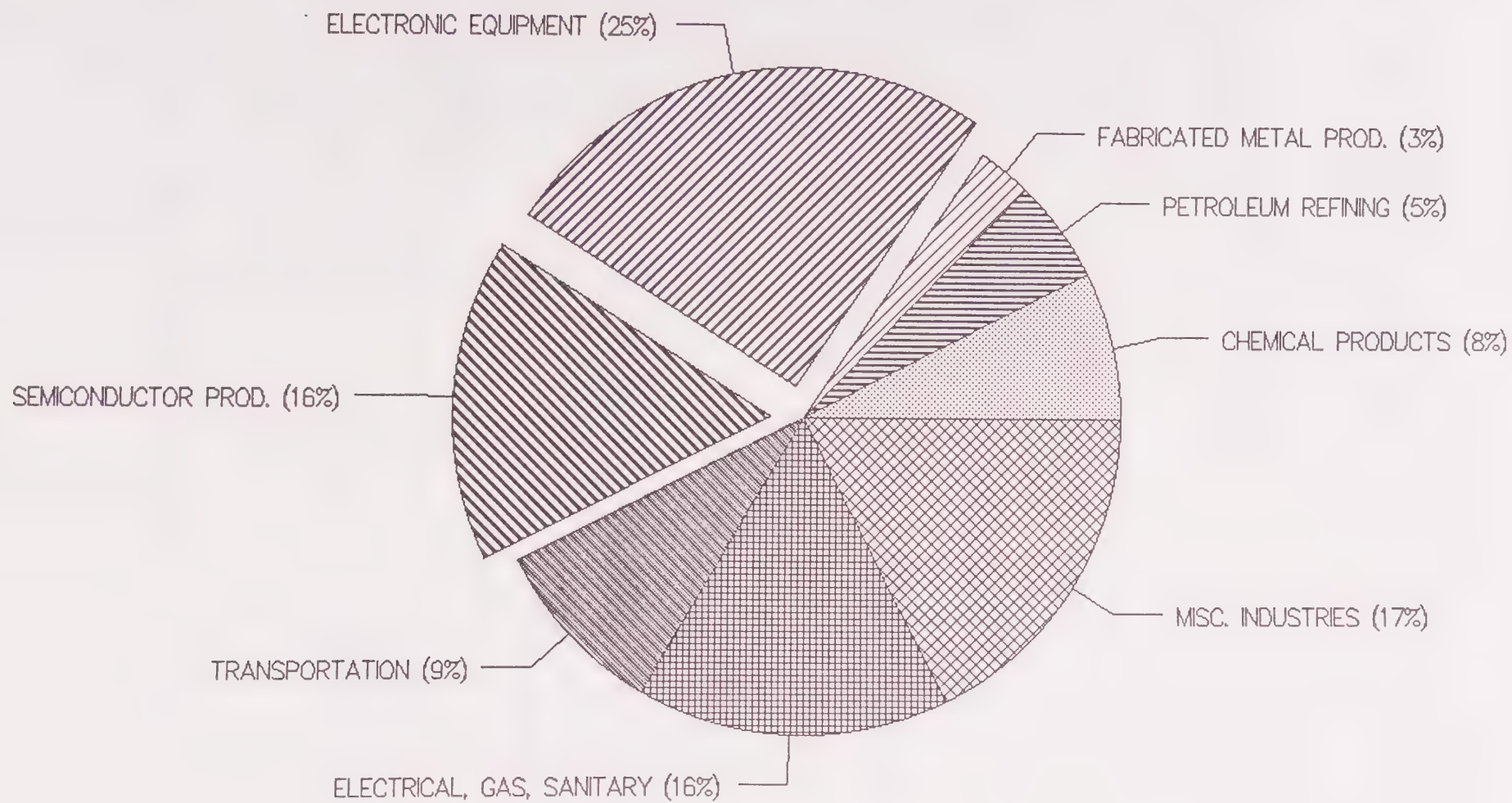
\* This table excludes one time shipments of waste

**TABLE 3 - 2a. ADJUSTED\* MISCELLANEOUS WASTE SHIPPED OFF-SITE IN 1986  
BY SANTA CLARA COUNTY GENERATORS**

California Waste Category	Tons* of Manifested Miscellaneous Waste Shipped Off-site	General Treatment Method
141 Off-spec, Aged or Surplus	110	Other Recycling
151 Asbestos-containing Wastes	660	Stabilization
162 Other Spent Catalyst	10	Stabilization
172 Metal Dust	60	Other Recycling
181 Other Inorganic Solid Waste	3,520	Other Recycling
311 Pharmaceutical Waste	60	Stabilization
322 Biological Waste other than Sewage Sludge	10	Aqueous Treatment- Organic
331 Off-spec, Aged or Surplus Organics	130	Other Recycling
511 Empty Pesticide Containers 30 gal	10	Other Recycling
512 Other Empty Containers 30 gal	1,240	Other Recycling
513 Empty Containers 30 gal	970	Other Recycling
541 Photochemicals/Photoprocessing Waste	400	Other Recycling
551 Laboratory Waste Chemicals	740	Other Recycling
561 Detergent and Soap	70	Other Recycling
581 Gas Scrubber Waste	10	Aqueous Treatment Metals/Neutralization
591 Baghouse Waste	10	Stabilization
612 Household Wastes	50	Other Recycling
<b>TOTAL</b>	<b>8,060</b>	<b>N.A.</b>

\* This table excludes one time shipments of waste

FIGURE 3-1. HAZARDOUS WASTE GENERATION BY INDUSTRIAL SECTOR, SANTA CLARA COUNTY, 1986



SOURCE: Association of Bay Area Governments.

**TABLE 3-3. MAJOR GENERATORS OF HAZARDOUS WASTE IN  
SANTA CLARA COUNTY, 1985 - 1987 (Tons)**

FACILITY NAME	CITY	1985	1986	1987
ALLIED PUMPING	San Jose	5,468	3,130	676
ALVISO IND. OIL CO.	Alviso	3,170	3,820	8,819
CHEM. SYSTEMS DIVISION	Santa Clara	1,772	1,100	855
DYSAN	S.C., S.V.	529	570	805
FAIRCHILD	Milpitas	1,861	1,440	1,578
FMC	San Jose	5,956	4,750	3,475
GENERAL INSTRUMENTS	Palo Alto	1,702	64	47
GREAT WESTERN	Milpitas	98	1,690	2,120
GRENEX	Sunnyvale	231	640	1,674
HEWLETT-PACKARD	P.A., S.C., S.J., M.V., S.V.	6,367	4,950	3,843
INTEL	Santa Clara	1,877	850	1,245
IBM	San Jose	15,469	11,640	5,255
IT CORPORATION	San Jose	846	530	58
KAISER CORPORATION	Cupertino	501	500	344
KOLTRON	Sunnyvale	224	630	577
LEVIN CORPORATION	San Jose	1,094	200	60
LOCKHEED	S.V., P.A.	1,221	2,320	2,606
MEMOREX	Cup., S.C.	2,352	1,600	992
NATIONAL SEMICOND.	Santa Clara	709	590	517
POLYMETRICS	Sunnyvale	697	35	6
RAYTHEON	Mtn. View	687	1,890	1,840
SAFETY KLEEN	San Jose	2,362	2,630	2,205
SANTA CLARA CIRCUITS	Santa Clara	600	609	80
SANTA CLARA VALLEY OIL	Santa Clara	1,276	600	1,030
SOLVENT SERVICES	San Jose	6,863	7,870	8,985
SOUTH BAY CHEMICALS	Gilroy	4,138	2,230	1,933
SUMMIT CORP.	Mtn. View	530	534	28
TANDY	Santa Clara	625	690	1,079
VLSI TECHNOLOGY, INC.	San Jose	665	384	276
VSM, INC.	San Jose	1,116	550	940
WESTINGHOUSE	S.J., S.V	638	680	715
XIDEX	S.V., S.C	890	1,000	1,664
ZYCON	Santa Clara	3,536	1,860	1,388
<b>TOTAL</b>		<b>76,070</b>	<b>62,576</b>	<b>57,716</b>

SOURCE: Department of Health Services, Hazardous Waste Information System, 1985-87

Key: Cupertino-Cup.      San Jose-S.J.  
Mtn. View-M.V.      Santa Clara-S.C.  
Palo Alto- P.A.      Sunnyvale-S.V.

**TABLE 3 - 4. QUANTITIES OF HAZARDOUS WASTE IMPORTED AND EXPORTED, SANTA CLARA COUNTY, 1986 MANIFEST DATA**

	<u>TONS</u>
Waste Reported on Manifests	87,430
Exported Wastes	76,880
(To Other Counties)	(66,460)
(Destination Unknown)	(10,420)
Waste Remaining in Santa Clara County	10,550
Waste Imported	<u>5,350</u>
Net Waste Treated or Disposed in County	15,900

Table 3-5 provides a more detailed description of the hazardous waste that were shipped off-site to other counties within the state in 1986. The majority of our exported wastes are comprised of metallic and non-metallic liquids, waste oil and oily sludges, solvents and organic liquids. Table 3-6 indicates the types of waste that were shipped to Santa Clara County by generators outside of this county. Based on the manifest data it appears that all forms of treatment except land disposal are available in this county. However, our analysis of commercial hazardous waste facility capacity indicates no commercial capacity is currently available for Aqueous Treatment Organic, Oil Recovery, and Incineration. This suggests that the assignment of wastes to the Generalized Treatment Method in the Technical Reference Manual are not correct or there may have been errors in the manifest. These anomalies are identified as issues that require further investigation.

A fuller discussion on where our wastes are exported and information on counties that send their wastes to Santa Clara County is presented in Chapter 6, Hazardous Waste Management and Chapter 9, Transportation.

**TABLE 3 - 5. 1986 EXPORT BY WASTE CATEGORY, SANTA CLARA COUNTY**

<b>Waste Group</b>	<b>Tons</b>	<b>General Treatment Method</b>
Waste Oil	9,437	Oil Recovery
Halogenated Solvents	1,865	Solvent Recovery
Non-Halogenated Solvents	8,550	Solvent Recovery
Organic Liquids	8,525	Other Recycling
Pesticides	25	Aqueous Treatment- Organic
Dioxins	729	Incineration
Oil Sludges	4,560	Oil Recovery
Halogenated Organic Sludges and Solids	379	Incineration
Non-Halogenated Organic Sludges and Solids	2,669	Incineration
Die & Paint Sludges and Resins	1,599	Incineration
Metal-containing Sludges	3,993	Stabilization
Metal-containing Liquids	12,318	Aqueous Treatment- Metals/Neutralization
Non-Metallic Inorganic Sludges	1,127	Stabilization
Non-Metallic Inorganic Liquids	7,231	Aqueous Treatment Metals/Neutralization
Cyanide & Metal Liquids	35	Aqueous Treatment Metals/Neutralization
Contaminated Soil	5,397	Incineration
Misc. Waste	8,441	See Note 1
<b>TOTAL</b>	<b>76,880</b>	<b>N.A.</b>

Note 1: The general treatment method for Miscellaneous Wastes are distributed according to the method described earlier in this chapter.

**TABLE 3-6. 1986 IMPORT BY WASTE CATEGORY, SANTA CLARA COUNTY**

<b>Waste Group</b>	<b>Tons</b>	<b>General Treatment Method</b>
Waste Oil	1,180	Oil Recovery
Halogenated Solvents	354	Solvent Recovery
Non-Halogenated Solvents	1,170	Solvent Recovery
Organic Liquids	91	Other Recycling
Pesticides	13	Aqueous Treatment- Organic
Dioxins	60	Incineration
Oil Sludges	230	Oil Recovery
Halogenated Organic Sludges & Soils	15	Incineration
Non-Halogenated Organic Sludges & Soils	87	Incineration
Dye & Paint Sludges & Resins	125	Incineration
Metal-containing Sludges	96	Stabilization
Metal-containing Liquids	992	Aqueous Treatment Metals/Neutralization
Non-Metallic Inorganic Sludges	15	Stabilization
Non-Metallic Inorganic Liquids	557	Aqueous Treatment Metals/Neutralization
Cyanide & Metal Liquids	4	Aqueous Treatment Metals/Neutralization
Contaminated Soil	5	Incineration
Misc. Wastes	356	N.A.
<b>TOTAL</b>	<b>5,350</b>	<b>N.A.</b>

**TABLE 3-7. 1986 ESTIMATE OF KNOWN OUT-OF-STATE SHIPMENTS OF HAZARDOUS WASTES\***

<b>Waste Group</b>	<b>Tons</b>
Non-halogenated solvents	51
PCB's/Dioxin	77
Halogenated organic sludges and solids	6
Non-halogenated organic sludges and solids	13,115
Non-metallic sludges	74
Metal-containing sludge	600 (F006)
Non-metallic inorganic liquids	3
Organic liquids	23
Dye and paint sludges and resins	518
Contaminated soils	34
Metal-containing liquid	3
Miscellaneous	73
<b>TOTAL</b>	<b>14,577</b>

\*Note: This information represents data for approximately 10 firms. It is expected that a substantially greater number of firms export their wastes out of state. This data was presented to provide a sense of the types of waste sent out of state. The majority of the waste will be incinerated.

For 1986 limited data was available for out of state shipments of waste. Table 3-7 shows the type and amount of wastes exported out of state. The majority of these wastes (PCB's/Dioxin, 77 tons; non-halogenated organic sludges and solids, 13,115 tons; dye and paint sludges and resins, 518 tons; and contaminated soils, 34 tons) were sent to facilities for incineration. Information on out of state shipments of hazardous wastes were not available for 1985 or 1987.

## Underground Fuel Tanks

Estimates on the volume of waste generation as a result of leaking underground tanks utilized information from the DHS manifest system, EPA data, discussions with the Santa Clara Valley Water District, and representatives from major oil companies. Recent data from the Regional Water Quality Control Board (RWQCB) indicate a total of 6,324 underground storage tanks in Santa Clara County. Approximately 25 percent of these tanks are used to store solvents, waste oil, and other chemicals. The remaining 75 percent are used for the storage of motor fuels. Not included in this data are tanks used to store fuel for farm use or home heating oil. The 1986 and 1987 manifest data for Santa Clara County indicate that for the 226 cases including contaminated soil, an average of 47 tons of soil were excavated and shipped off-site for each reported cleanup (see Table 3-8 below).

**TABLE 3 - 8. CONTAMINATED SOILS SHIPMENTS AND AMOUNTS,  
SANTA CLARA COUNTY, 1986, 1987**

1986		1987	
<u>Tons</u>	<u>Number of Shipments</u>	<u>Tons</u>	<u>Number of Shipments</u>
5,367	106	5,310	120

In 1985, there was nearly twice the amount of contaminated soils (8,010 tons) shipped off-site by half (54) as many generators when compared to 1986 or 1987. For 1986 and 1987, the amount of contaminated soil shipped off-site leveled off at 5,300 tons with approximately 100 cases per year. For this reason the 1986 and 1987 data were used as representative samples of soil removed as a result of leaking underground tanks.

For purposes of this Plan we estimate that 50 percent of all fuel tanks will leak. This factor is higher than the EPA estimate of 35 percent. It is also assumed that 50 percent of the identified leaking fuel tanks will require soils removal and site remediation. Based on these factors it is estimated that a total of 55,730 tons of contaminated soils will be generated as a result of leaking underground fuel tanks. Assuming a 10 year period to clean up all the identified leaking tanks in the county, approximately 5,570 tons of contaminated soils will be generated annually as a result of leaking underground tank site remediation.

We estimate that new cases as a result of leaking industrial storage tanks will decrease as double containment and monitoring become the norm for operation of these facilities. However, we can expect new cases to be identified as old tanks are being replaced and site investigations continue. The following section on contaminated sites discusses what is currently known at these identified sites.

## **Contaminated Sites**

Information on the 35 known contaminated sites in Santa Clara County was derived from the Site Reporting Form provided by the DHS and was used in the discussion on wastes from contaminated sites. Information about the volume of waste generation from site cleanup were not available from the reporting forms.

The volume of waste shipped off-site will depend on the remediation techniques that will be utilized. New technologies in bioremediation and the use of Transportable Treatment Units (TTU's) may allow for on-site treatment for a number of these sites.

This analysis is based upon 35 major known contaminated sites in Santa Clara County. This analysis does not include other potential cleanup sites which may be listed in RWQCB or other reports.

Based on estimates of both the cost of site remediation and presence of groundwater contamination, 26 of the sites can be characterized as "large," two are considered "medium", and seven "small."

While the remediation techniques for these sites have not been chosen, the type (although not the amounts) of wastes which persist at these sites is generally known. 25 of the 35 sites possess contaminated soil and groundwater due to both halogenated and non-halogenated soil and solvents. Waste groups which appear in the soil and groundwater of other known sites are as follows:

Cyanide and Metal Liquid	1 site
Metal-containing Liquid	3 sites
Non-Metallic Inorganic Liquid	3 sites
Organic Liquid	1 site
Pesticides	2 sites
Other Soils, Lead, Mercury	2 sites
Waste Oil	1 site
PCB's	2 sites

It is clear that some contaminated soil will be transported from these sites and many of the sites will require groundwater cleanup. Those sites that do not have significant soil contamination may not require transport of soils off-site. As we currently have little information about the amounts of contaminated soils which will require transport we can only include the limited quantity information we have and assume that the rest of these sites will require remediation with the method to be determined.

The available information on amount of soil contamination is as follows: One site has 30,000,000 cubic yards of contaminated soil. Three other sites appear to require remediation for amounts of contaminated soil between 500 and 1,000 cubic yards. The remaining sites possess unknown quantities of contaminated soils and groundwater.

Remediation of these sites is planned to begin on a schedule as listed below. Also identified are the major waste groups found on these sites. See Appendix III - D for available information on each site.

WASTE GROUP	REMEDICATION SCHEDULED TO COMMENCE BY SITE
Non-Halogenated Solvents and Halogenated Solvents	8/88, 9/88, 5/89, 6/89 (2), 8/89, 11/89, 5/90, 12/90 (3), 5/91, 7/91 (5), 9/91, 8/93, 9/93, 10/93
Non-Metallic Inorganic Liquids	7/88, 10/88, 3/89
Cyanide and Metal Liquids	7/88
Metal-containing, Pesticides	7/92
Metal-containing Liquids, Non-halogenated Solvents	7/92
Pesticides	1/88
Polychlorinated Biphenyls	8/89, 10/89
Organic Liquids, Halogenated Solvents	5/90
Other Soils (Mercury, Lead Oxide)	12/88, 3/92

Based on this proposed remediation schedule, hazardous waste data for Santa Clara County should reflect the generation of some contaminated soils and/or some treatment sludges from the above sites during the years of 1988 through 1993 or longer, depending upon the actual length of proposed remediation activities. However until more specific cleanup plans are developed it is not possible to predict the amount of contaminated soils that will require off-site treatment and disposal.

### Household Hazardous Waste

Waste generation by households has been studied throughout the country. This Plan utilized information from the Marin County, California and New Orleans, Louisiana studies that characterized household hazardous waste (HHW) generation. The HHW groups were converted to the Waste Groups used in this Plan. The

studies also provided an estimate of this average pounds per year of specified waste types that could be expected to be generated by each household (Appendix III-E).

The countywide estimate of HHW generation is computed by multiplying each of the identified waste groups by the number of households. In 1986 there were 493,725 households in the county. Table 3 - 9 shows the estimated quantities of HHW generated by households in 1986. Four major waste group categories (Waste Oil, Dye and Paint Sludges and Resin, Non-metallic Inorganic Liquids, and Miscellaneous Waste) account for over 85 percent of the entire HHW stream. Although the first two waste groups are self explanatory the latter two categories require further clarification. The waste group "Non-Metallic Inorganic Liquids" is comprised primarily of household cleaners. The category "Miscellaneous Wastes" is comprised of prescription drugs, batteries and other electrical devices, and household maintenance products. Based on the technique described above it is estimated that in 1986 a total of 1,640 tons of HHW was generated in Santa Clara County. It is estimated that 595,470 households that will live in Santa Clara County by the year 2000 will generate approximately 1,970 tons of HHW.

The year 2000 estimate of HHW generation assumes that households will generate waste at the same level in the forecast year as they did in the base year, 1986. In mathematical terms we assume the following:

$$\frac{1986 \text{ Pop}}{2000 \text{ Pop}} = \frac{1986 \text{ HHW (Tons)}}{2000 \text{ HHW (Tons)}}$$

By substituting the 1986 information and the estimate of the year 2000 population into the formula we get:

$$\text{Year 2000 waste} = 1,970 = \frac{1640 \times 595,470}{493,725}$$

**TABLE 3-9. QUANTITIES OF HAZARDOUS WASTE GENERATION BY HOUSEHOLDS IN SANTA CLARA COUNTY, 1986 AND 2000 (Tons)**

Waste Group	1986	2000	General Treatment Method
Waste Oil	220	270	Oil Recovery
Halogenated Solvents	10	10	Solvent Recovery
Non-Halogenated Solvents	20	30	Solvent Recovery
Organic Liquids	10	20	Other Recycling
Pesticides	80	100	Aqueous Treatment-Organic
PCBS & Dioxins	0	0	Incineration
Oily Sludges	0	0	Oil Recovery
Halogenated Organic Sludges and Solids	0	0	Incineration
Non-Halogenated Organic Sludges & Solids	70	90	Incineration
Dye & Paint Sludges & Resins	310	360	Incineration
Metal-containing Sludges	0	0	Aqueous Treatment Metal/Neutralization
Cyanide & Metal Liquids	0	0	Aqueous Treatment Metal/Neutralization
Non-Metallic Inorganic Liquids	230	280	Stabilization
Metal-containing Sludges	0	0	Stabilization
Non-Metallic Inorganic Sludges	0	0	Stabilization
Contaminated Soil	0	0	Incineration
Miscellaneous Wastes	690	810	See Note 1
<b>TOTALS</b>	<b>1640</b>	<b>1970</b>	<b>N.A.</b>

Note 1: The general treatment method for Miscellaneous Wastes are distributed according to the method described earlier in this chapter.

## Small Quantity Generator

We estimate that there are currently over 5,000 small quantity generators (SQGs) in Santa Clara County and that collectively they generate over 52,000 tons of hazardous waste per year. SQGs are commercial, industrial, and institutional facilities which generate less than 1000 kilograms (approximately 1.1 tons) of hazardous waste per month. SQGs are often generate wastes which contain heavy metals, cyanides, organic solvents, waste paints, oil and grease, and pesticides. Typical businesses which are considered to be SQGs include: metal finishers, dry cleaners, auto body and repair shops, gas stations, chemical formulators, printers, photographic processors, schools, and public works departments.

While information from the manifest system was used to develop the assessment of current hazardous waste management needs, an unknown number of generators in the county do not fill out DHS manifests. The largest generators do submit information. Many smaller generators, however, may be unaware that they are required to submit information to the State. To capture some information about these unidentified generators DHS has developed a series of formulas which the County has used to estimate the number of SQGs in Santa Clara County and the waste streams they produce. The "No Survey Method" as it is called is used to estimate the hazardous waste which is produced by 22 different industry groups as defined by SIC (Standard Industrial Classification) codes of businesses within each group. The 1985 County Business Patterns was used to obtain the number of businesses in Santa Clara County. Although this method may not capture information on every hazardous waste generator in the county it is the most reliable source to date.

The results of the "No Survey Method" for estimating waste generation by SQG is shown in Table 3-10. In comparing the results from this table with manifested waste it appears that a substantial portion of certain wastes generated by SQG are not captured in the DHS manifest system.

**TABLE 3-10. QUANTITIES OF HAZARDOUS WASTE GENERATION BY SMALL QUANTITY GENERATORS IN SANTA CLARA COUNTY, 1986 AND 2000 (Tons)**

Waste Group	1986	2000	General Treatment Method
Waste Oil	40,3000	54,000	Oil Recovery
Halogenated Solvents	0	0	Solvent Recovery
Non-Halogenated Solvents	1,850	3,340	Solvent Recovery
Organic Liquids	130	270	Other Recycling
Pesticides	310	340	Aqueous Treatment- Organic
PCBS & Dioxins	30	40	Incineration
Oily Sludges	0	0	Oil Recovery
Halogenated Organic Sludges & Solids	100	130	Incineration
Dye & Paint Sludges & Resins	340	410	Incineration
Metal-Containing Sludges	340	490	Aqueous Treatment Metal/Neutralization
Cyanide & Metal Liquids	110	140	Aqueous Treatment Metal/Neutralization
Non-Metallic Inorganic Liquids	2,650	3,980	Stabilization
Metal-containing Sludges	120	320	Stabilization
Non-Metallic Inorganic Sludges	0	0	Stabilization
Contaminated Soil	0	0	Incineration
Miscellaneous Wastes	5,580	7,810	See Note 1
<b>TOTALS</b>	<b>52,000</b>	<b>71,500</b>	<b>N.A.</b>

Note 1: The general treatment method for Miscellaneous Wastes are distributed according to the method described earlier in this chapter.

For example, waste oil generation from SQG's is estimated to be 40,300 tons in 1986. When compared with DHS manifest data for the same time period it appears that a little over 25% (11,300 tons) of the estimated waste oil stream generated by SQG's is being shipped off-site and properly manifested. A partial explanation for this variation is the presence of route service haulers who collect waste oil in one or more counties but manifest the waste from the county in which their business is located. Efforts to contact route service haulers in this county yielded limited data which is included in Appendix III-E. Coordination between counties is needed to identify all route service haulers and to develop a reporting system that can attribute quantities of waste to the county of origin rather than the business address of the hauler.

The question of how and where much of this waste is managed remains unanswered. Some of this waste was probably disposed of into sewers and solid waste landfills, stored on-site for long periods of time, or managed in some ways inside or outside of Santa Clara County. In addition, if a generator does send hazardous waste to a private treatment, storage or disposal facility but fails to fill out a manifest completely this data is entered into a suspense file. We must assume then that a portion of the total number of submitted manifests are absent from the DHS summary data upon which we base our initial planning estimates.

## **CHAPTER 4**

### **WASTES POSING SPECIAL MANAGEMENT CHALLENGES: SQG, HOUSEHOLD, DESIGNATED AND INFECTIOUS WASTES**

#### **INTRODUCTION**

Four sources of waste were identified by the Countywide Hazardous Waste Management planning process which warrant special discussion due either to requirements for special waste management practices or challenges posed to those who will implement the policies and programs which are recommended in this Plan. These wastes types include wastes which are generated by small quantity generators (SQGs), household hazardous wastes (HHW), wastes which have been "designated" by the California Department of Health Services (DHS), and infectious wastes.

#### **SMALL QUANTITY GENERATORS**

SQGs are small (often with fewer than 10 employees) commercial, industrial, and institutional facilities which generate less than 1000 kilograms (approximately 1.1 tons) of hazardous waste per month. SQGs are often faced with managing wastes which contain heavy metals, cyanides, organic solvents, waste paints, oil and grease, and pesticides. Types of businesses which are considered to be SQGs include: metal finishers, dry cleaners, auto body and repair shops, gas stations, chemical formulators, printers, photographic processors, schools, and public works departments.

While SQGs are often responsible for a moderate percentage of the total quantity of hazardous waste produced in a region, they are of great concern because collectively they represent a critical waste stream due to the following reasons:

- (1) The waste produced by SQGs can have a high hazard potential;
- (2) Due to the kinds of services they provide, many SQGs are located in closer proximity to residential neighborhoods than are large generators;
- (3) Many SQGs are involved in improper or illegal disposal practices;
- (4) They are composed of a large number of individual and diverse entities; and
- (5) A large number of these smaller businesses are managed by individuals who possess little or no formal training in the proper identification and management of hazardous waste.

In recognition of these facts, there is growing concern about the contribution of SQGs to the overall risks associated with improper disposal of hazardous waste. Sometimes SQGs attempt to manage hazardous waste based upon a lack of knowledge of federal and state regulations, as well as a lack of information about alternatives to hazardous waste land disposal.

### **Existing Programs**

While the County Environmental Health Department has the authority to inspect generators, including SQGs, no comprehensive program currently exists in the county which specifically addresses the special needs of SQGs. From the County's perspective, the needs of SQGs specifically are for information and technical assistance, cost effective strategies, as well as coordinated and consistent enforcement of hazardous waste regulations.

The development of a SQGs pilot project or ongoing program in Santa Clara County can be based upon the results of a number of studies and efforts which have been conducted at both the federal level and in other local jurisdictions in and outside California.

## General Assessment

In 1985, the Environmental Protection Agency issued the results of the National Small Quantity Generator Survey. The survey provides a national profile of SQGs, including the types and amounts of waste they generate, as well as information about their waste management practices. (This data is based upon only those SQGs who responded to the survey; the response rate was 52.6%).

The survey report estimated that there were 600,000 to 680,000 small quantity generators in the United States, and that nearly 70 percent of them are located in metropolitan areas. This is accounted for by the fact that about 80 percent of the SQGs in the nation are part of service industries which tend to be located near large population centers. On a national level, vehicle maintenance and construction businesses accounted for 50 percent and 12 percent of the total number of SQGs respectively. Fifteen percent of the SQG respondents are businesses which fall into the manufacturing sector, particularly in metal manufacturing, printing, furniture manufacturing and textile industries. The remainder are involved in other service industries such as schools, equipment repair, laundries, and photographic processing. In addition, the national study revealed that 28 percent of all SQGs produce more than 80 percent of SQG waste. The 28 percent is composed entirely of facilities that generate more than 100 kilograms (and less than 1000 kilograms) per month of hazardous waste. The survey also found that SQG waste is primarily comprised of waste oil, lead-acid batteries, solvents, acids and alkalies, and other wastes such as pesticides, photographic wastes and dry cleaner filters.

In 1985, the Association of Bay Area Governments (ABAG) conducted a study of small quantity generators in the San Francisco Bay Area which provides further insight into the small generator problem. The study found that the perceptions and problems in managing small amounts of waste are similar throughout the nine counties and across Standard Industrial Classification (SIC) codes. The following

types of wastes were determined to be in need of improved management and disposal practices:

Paints and thinners	Inks
Oils and grease	Antifreeze
Acids	Solvents
Alkaline cleaners	Sludges
Miscellaneous: formaldehyde, rust inhibitor	

Over half (57%) of the 67 businesses surveyed were conducting some inappropriate disposal. The ABAG study also found that proper waste management practices "correlated somewhat" to a company's understanding of federal and state regulations. The report indicated there were a number of requests from businesses for educational material on how to properly manage hazardous wastes. The study concluded that "it is clear that inappropriate disposal could be remedied with education, good housekeeping practices, recycling, use of industrial laundries, and alternative disposal options for small amounts of waste. Identifying the diverse and large number of small quantity generators is one of the problems in enforcing hazardous waste regulations."

### **Santa Clara County**

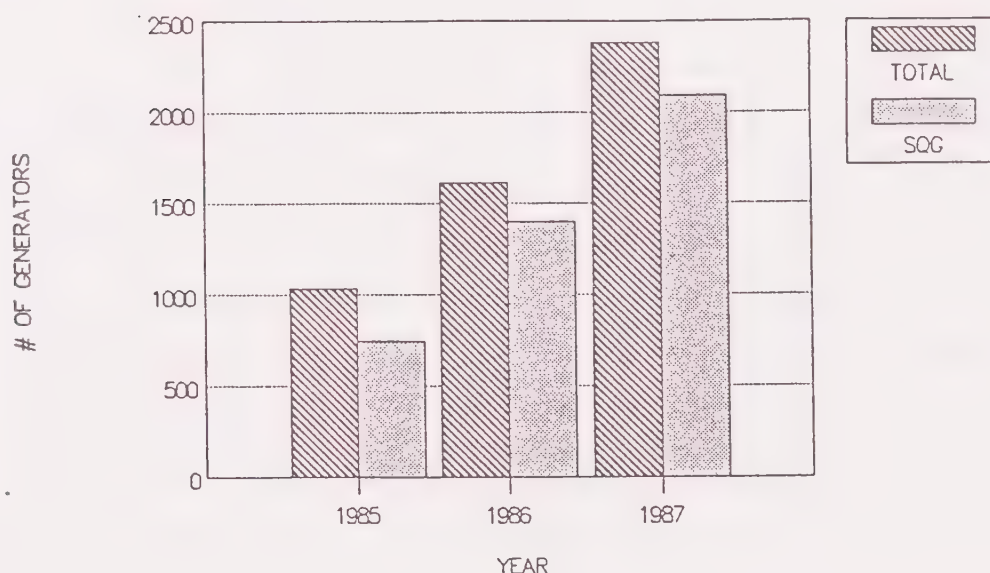
While it is difficult to identify the diverse and large number of SQGs in Santa Clara County, it is estimated that there are currently over 5,000 small quantity generators in Santa Clara County and that collectively they generate over 52,000 tons of hazardous waste per year. Waste oil is the major hazardous waste category produced by SQGs while solvents and non-metallic inorganic liquids comprise the other major waste groups.

Although precise estimates of the number of SQGs in Santa Clara County are currently unknown (as indicated in Chapter 3), Figure 4-1 shows an increase in the overall number of SQGs who utilized the manifest system from 1985 to 1987. The

FIGURE 4-1. NUMBER OF GENERATORS AND AMOUNT OF MANIFESTED WASTE: SQGS VS TOTAL, SANTA CLARA COUNTY, 1985-1987

## NUMBER OF (MANIFESTED) GENERATORS

SANTA CLARA COUNTY, 1985-87



## AMOUNT OF (MANIFESTED) HAZ. WASTE

SANTA CLARA COUNTY, 1985-87

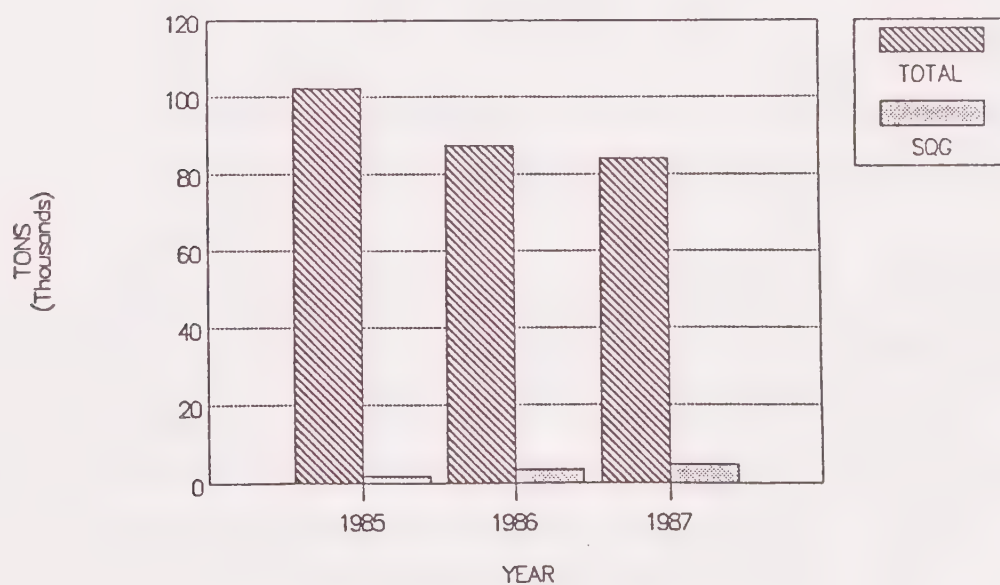


figure also shows an increase in the proportion of the total manifested waste attributable to SQGs over the three year period, while showing a decrease in the total waste generated. In contrast, the largest generators have decreased the tonnage of waste which they manifested from 1985 to 1987. This shift may be due in part to the use of hazardous waste management methods that do not require California manifesting such as on-site treatment and the shipping of hazardous waste out of state.

While the question of where and how much of this waste is managed annually remains unanswered, there is a growing recognition that the current waste disposal and management practices utilized by many SQGs pose potential risks to human health and the environment. These practices include sending hazardous waste to municipal landfills, long-term storage on-site, and dumping into sewers, storm drains or on the ground. In addition, the proximity of many SQGs to residential areas increases the potential risks to health and the environment from the improper disposal practices mentioned above.

There are a number of reasons why SQGs sometimes engage in disposal practices which do not meet regulatory requirements. The primary reason is a lack of information and understanding of regulations and alternative hazardous waste management practices. Some find the numerous permit requirements and regulations overwhelming so they choose to overlook them. While larger companies can afford to hire employees or consultants to handle hazardous waste permitting and management, small businesses can rarely afford this service.

Another obstacle for small businesses is the cost of legal disposal. For many types of wastes, the costs of legal disposal are higher than the purchase price of the product. The SQGs cannot take advantage of economies of scale. The result is that the SQGs often pays more per drum for hazardous waste disposal than a large quantity generator. Furthermore, while it may be feasible and preferred to recycle or treat the waste on-site, the cost can be out of reach for the small business. Recent studies

(from the University of California at Davis) estimate the initial costs of an EPA permit for on-site treatment to be \$60,000 plus annual permit costs of \$10,000. In addition, the cost for liability insurance may be as high as \$400,000 per year. Small businesses exist in an extremely competitive environment which leaves few in a position to afford such costs.

Finally, due to the great numbers of SQGs, it is difficult for regulatory agencies to continually track their compliance with hazardous waste regulations. The result is a perception among many SQGs that they can improperly dispose of their waste without great risk of being detected. In other words, from an economic standpoint, improper or illegal disposal can be preferred to paying the costs of legal disposal.

Based on the above discussion, it is clear that three categories of obstacles are inhibiting legal hazardous waste disposal and innovative waste management by some SQGs. These categories are information and technical assistance, enforcement, and cost. Some of these needs can be best addressed through local programs while other steps must be taken at the state and federal levels. Recommendations for meeting the needs of SQGs are included in Chapter 11 - Implementation.

## HOUSEHOLD HAZARDOUS WASTE

Household hazardous wastes (HHW) are those products purchased by the public for use in the household which could, if improperly stored, used, or disposed of, cause illness or injury to public health and/or the environment. These products include paint and paint supplies, cleaning solvents and polishes, motor oil, antifreeze, pesticides, photographic chemicals, flea powder, pool chemicals, and pharmaceutical products. Everyday, literally tons of these hazardous substances are washed or poured down drains or disposed of with the household refuse. While the volumes produced by households are substantially lower than the amounts produced by industry, substantial potential hazards are associated with improper disposal of consumer products that contain hazardous substances. The hazardous wastes

generated by households have generally been stored indefinitely, or discarded into sewer/septic systems; and some of these wastes have ended up at landfills or municipal incinerators. None of these methods can be considered safe due to the potential for air, water, and soil contamination. For instance, when discharged into sewers, hazardous wastes can interfere with the biological breakdown of materials which occurs at the sewage treatment plant and result in the release of undertreated or untreated sewage into rivers and oceans. When disposed of in a municipal landfill, hazardous wastes may again disrupt the biological breakdown of refuse, vent into the air as hazardous emissions, or accumulate and leach into the groundwater.

In response to new state regulations and in an effort to divert hazardous waste from the municipal waste stream, a growing number of local jurisdictions initiated programs which allow residents to bring their household hazardous waste to an approved drop-off location (most commonly referred to as Household Hazardous Waste Collection Days or "Roundups") as an alternative to sewage disposal or landfill burial. Many successful programs for the collection of HHW have been provided throughout the county and the state. Most of these programs however, have been quite costly, and as one-day collection events, have not been integrated into a long-term waste management system.

The intent of AB 2948 (Tanner) is to hold counties responsible for all wastes being generated within their boundaries, including that which is being generated by households. AB 1809 (also Tanner) authorizes cities and counties to increase their solid waste fees to generate the necessary funding for the establishment, publicity and maintenance of a HHW management system. Clearly, it is the intent of the State Legislature, at this time, to urge counties to plan for the long-term management of household hazardous waste.

In fulfilling its obligations under new state regulations, the County has several options to consider regarding how it may manage its household hazardous waste.

Are HHW collection days the most viable option? What kinds of programs have already been held in the county? Which types of programs will comply with and meet the intent of the applicable federal, state and local regulations and provide long-term management of household wastes? And finally, which program options will meet county needs and also fit the intent of the Tanner planning process? Background which will lead to suggested answers to the above questions will be provided in the remainder of this chapter and in Chapter 11 - Implementation.

## **Existing Programs**

### What is a HHW Collection Program?

A HHW collection program provides citizens with a specific time, date and location where they can deliver their unwanted household hazardous substances, generally free of charge. At the designated location personnel trained in the handling of hazardous wastes accept the products, segregate them into compatible categories, recycle what they can, and package the rest into large drums (usually 55 gallons) for transport to a facility authorized to accept the materials for disposal. Cities have generally utilized independent, licensed hazardous waste haulers to handle the materials collected at HHW collection events.

Limitations have been set on the volume and types of waste which will be accepted at the collection days. These limits are the result of federal and state regulations which govern the transport and disposal of hazardous waste, as well as funding constraints. These limitations follow:

- (1) A participant can bring no more than 5 gallons of liquid or 50 pounds of solid hazardous waste per trip to the collection site (based on California Health and Safety Code, Section 25163) with a maximum of three trips per participant.

(2) Waste types not accepted through the program:

- o Waste containing dioxins, e.g., some wood preservatives and pesticides (no method for treatment or disposal exists in United States);
- o Radioactive waste (expensive to dispose, requires specific permits); and
- o Biologically active waste (expensive to dispose, requires specific permits).

(3) Waste types discouraged but accepted under certain circumstances through the program:

- o Polychlorinated biphenyls or PCBs (expensive to dispose); and
- o Explosives (handled by local bomb squads.)

## **General Assessment**

### **Participation**

The first one-day HHW collection programs were held in Lebanon, Kentucky; Lexington, Massachusetts and Seattle, Washington in 1981-82. The first California programs were held in Sacramento in 1982 and Palo Alto in 1983. In 1986, over 40 one-day programs were held in the Bay Area alone. The Association of Bay Area Governments (ABAG) has summarized data from several one-day HHW collection events conducted in the Bay Area. The "participation rate" averages 0.8% of households in the jurisdiction and ranges from 0.6% to over 2.0%. (please see Appendix IV-A). The hazardous waste generation rate (amount of drums of material collected during the HHW events) averages 0.4 drums (usually 55 gallons) per household while the highest rate occurred in San Mateo at 1.24 drums per household and consisted primarily of paint and paint supplies.

## Methods of Collection

Many local jurisdictions around the state, including Sacramento, Nevada and Orange Counties, sponsor annual HHW collection programs. They often consist of four or more collection days per year with sites being rotated around the county to provide greater access to all residents. In an effort to increase program effectiveness and decrease program cost, a few locales have instituted alternatives to household hazardous waste "roundup" days. They include establishing permanent or rotating drop-off locations that will accept HHWs on a regular basis, and providing curbside pickup of HHWs. San Bernardino County, for instance, has several permanent drop-off locations where residents can deliver their HHWs five days a week, nine hours a day. The County has three permanent facilities in place and are actively searching for a fourth location. By 1988, they planned to have seven facilities in place. In an effort to cut program costs, the County has sited two facilities, at a fire station and the Agricultural Commissioner's office, where trained County staff can accept the substances from homeowners and place them into the barrels that are stored at these locations.

San Diego's HHW program, one of the most extensive and expensive, has a budget of \$500,000 per year and provides the following services; pick up and drop off of HHWs under contract with a hazardous waste hauler, sixteen roundup days per year held at county landfills and four paint recycling days in conjunction with Standard Brands Paints. In fact, paints often represent fifty percent by volume of the wastes collected. Therefore, the paint recycling component makes economic sense, given the high costs of handling hazardous wastes, as it helps to remove paints from the waste stream. Standard Brands has agreed to recycle the paints collected on the condition that the County buy back the paint for use and/or sale by the County or other local governments.

After holding their own toxic roundup days, some cities such as Mountain View, Los Altos and Cupertino, have joined together to sponsor joint collection day

programs. This approach allows an individual jurisdiction to consolidate efforts and to take advantage of economies of scale (i.e. save money).

Pilot programs in San Diego and Los Angeles propose to collect HHW from residents on an on call scheduled basis. These home pickup programs are projected to be quite expensive. In San Francisco private companies offer year-round drop-off programs for a fee. Other cities have proposed and initiated similar programs.

There is some indication that fees could also be collected directly in this county from those who bring HHW to collection points. The survey conducted by the City of Santa Clara during their collection day illustrates how much people would be willing to pay to use a HHW collection day program:

\$5.00 or over	60%
4.00	3%
3.00	6%
2.00	15%
1.00	7%
No response	9%

It should be mentioned, however, that as a funding strategy, direct fee collection may reduce overall program participation, and therefore, effectiveness.

The operating costs for HHW collection programs that have been held in Santa Clara County (and generally) range from \$4,100 spent to collect and dispose of 10.5 drums in Morgan Hill (participation rate of 0.93%); to \$39,805 for 123 drums in Santa Clara (0.72% participation rate). During 1989, participation in HHW collection events has increased dramatically. As an example, San Jose's two-day event drew 2200 people and collected two to three times the waste that was collected during a similar event in 1988. The City of Sunnyvale experienced a similar increase in participation and in waste collected.

There are two general categories of operating costs we must consider when planning a HHW collection program - fixed costs and unit costs. Fixed costs include those for

site set-up, labor, equipment and publicity. The unit costs are the per drum costs for materials (e.g. for lab-packing hazardous substances), transportation and disposal/treatment. The fixed costs plus the unit costs equal the event cost.

In the Bay Area, the average unit disposal cost for HHW collection programs is as follows:

\$350.00/drum if less than 50 drums

\$280.00/drum for 50-100 drums

\$260.00/drum for 100-150 drums

As low as \$230.00 per drum for 150 drums or more.

Clearly, when a higher number of drums are collected at one time, the unit cost is lowered by spreading fixed expenses. However, as the availability of Class I landfill space diminishes and as more waste is restricted from municipal landfill disposal, the disposal costs for one-day programs, as well as other hazardous waste disposal, will continue to increase.

## **Santa Clara County**

Presently, eight of the fifteen cities in Santa Clara County sponsor or have sponsored HHW collection days. Participation trends, as opposed to rates, can tell us something about what to expect from HHW collection efforts we conduct in Santa Clara County. Palo Alto (and Santa Rosa) has operated regularly scheduled programs - twice each year for the past four years. Palo Alto's participation rate has risen gradually from 0.65% to over 2 percent during the 1987 - 88 fiscal year. In general, participation appears to be higher in the spring when activities such as painting, gardening and house cleaning result in the collection of more partially used containers of hazardous substances. In addition, factors such as weather, competing activities in the area, the proportion of rental units in a program area, the local communication network and the characteristics of the site location (e.g. access) also affect participation in these programs.

It is worth noting that repeat participation had reached 23% in Palo Alto by the end of 1986. This indicates a core of households that regularly produce hazardous waste and need to have access to a hazardous waste management program on a regular basis. Palo Alto's HHW generation had also increased from 30 drums in 1983 to over 300 in 1986 and has leveled off to approximately 220 drums per event.

Extrapolating from data on nine collection events in Palo Alto, we project that countywide, an average number of 5,101 households (or about 1%) in the county would participate in HHW collection events. This scenario would result in the collection of 1,607 (55 gallon) drums or about 200 tons of materials per countywide event.

It is evident from the demand for HHW collection events in a number of cities in the county that there remains a need for a HHW management system in the county. In fact, more than ten HHW collection events were held countywide in 1988, and about the same number are planned for 1989. Given the expense and technical expertise necessary for sponsoring collection events, however, and the desire countywide for a long-term solution to this problem, the County, in cooperation with the cities, should pursue the development of ongoing programs and sites(s) for HHW collection as cities continue to sponsor one or two-day HHW collection events as they deem necessary. Since HHW events are usually limited to the local city residents, a portion of the county population is currently without any avenue for the disposal of their HHW. The existence of these factors, in combination with the potential risks associated with improper disposal of HHWs, can provide the stimulus for the development of a more comprehensive HHW management program within Santa Clara County.

## DESIGNATED WASTES

In December 1984 the State Water Resources Control Board (SWRCB) adopted Subchapter 15 regulations of Title 23, Section 2522 of the SWRCB Code. These regulations created a category of wastes that are referred to as "designated wastes." According to these regulations, a designated waste is either (1) a hazardous waste which has been granted a variance<sup>1</sup> from hazardous waste management requirements by the California Department of Health Services (DHS) in accordance with Title 22 of the Health and Safety Code (Section 66310), or (2) nonhazardous waste which contains or consists of pollutants which, under ambient environmental conditions at the waste management facility or unit, could be released at concentrations in excess of applicable water quality objectives, or which could cause degradation of waters of the state.

The category of designated wastes, as defined in the Subchapter 15 regulations, usually includes the following waste types: nonhazardous contaminated soils from cleanup sites; asbestos-containing waste; some metal sludges; tank bottom waste; latex waste; pharmaceutical waste; paper sludge and pulp; soap and detergent; air pollution control waste; sand from sand blasting and foundry casting; dewatered sludges from sewage treatment and from tannery processes; chemical toilet and septage waste; ash from combustion processes; slag from coal gasification; cement kiln dust; auto shredder waste; and drilling muds, ores and mineral extractions. Designated wastes require slightly less stringent management than hazardous wastes.

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<sup>1</sup>Variances are granted only when the waste itself is found by the specified test procedure to be hazardous but is not considered hazardous in its natural form or when specific disposal practices are used which render the waste nonhazardous, e.g. a brass foundry slag which failed the "wet test" for waste designation was "designated" anyway when it was retested in its natural form. The slag was a fine powder which had a large surface area for leaching out of metals which was picked up by the "wet test" but in its natural block form the metals such as copper can pass the wet or leachate test below hazardous levels because of the reduced surface area of the material.

## Management of Designated Wastes

Designated wastes require less stringent management than hazardous wastes. Because some of these wastes might degrade water quality due to various characteristics they cannot be disposed of at Class III (municipal solid waste) disposal sites. These wastes must be disposed of either at Class I waste management units (hazardous waste sites) or at Class II waste management units which comply with the applicable provisions of the SWRCB Code and have been approved for containment of the particular kind of waste to be discharged (See Figure 4-2). A Class II or designated waste land fill is not a hazardous waste or Class I facility, and as such is not required to comply with the hazardous waste siting criteria provided in Chapter 8. State agencies encourage the use of Class I facility space for hazardous waste only, since hazardous waste landfills require the most stringent safeguards of all land disposal sites.

Disposal facilities for designated wastes are limited in part due to the lack of permitted Class II facilities in the Bay Area and elsewhere, and in part due to the reluctance of facility operators to invest in design features which are required under regulations for sites which accept designated wastes (See Figure 4-3). As a result, designated wastes are either disposed of at Class I disposal sites, sent out of state to sites in Utah and Nevada (such as USPCI in Utah which has a landfill cell for solid designated wastes), or disposed of in some other manner, e.g. as a landfill cover for a Class III (municipal solid waste) site closing.

In the Bay Area, two facilities have accepted designated wastes into their Class II units through 1987. These facilities are Acme Fill in Martinez and Richmond Sanitary in Richmond. As of late 1988, Acme Fill's Class II cell is closed and acts only as a temporary transfer station. Richmond Sanitary is also expected to close down their Class II cells sometime between February and June, 1989 due to a lack of capacity. These facility closings will leave the Bay Area without a permitted Class II waste management unit. According to some very rough estimates, Santa Clara

County generators shipped at least 10,000 tons of designated wastes to these two sites during 1987. When transforming these numbers into tons per year the rough figure of one yard equal to one ton was used as an average. In actuality the weight of these materials varies considerably. (For instance, loose refuse weighs approximately 500 pounds per yard while contaminated soil weighs about 1.5 tons per yard.) This rough estimate was developed based on a partial search of Regional Water Quality Control Board Files for these two facilities. The measurement method and accuracy of quantities in these files is not known. Furthermore, since many designated wastes have been allowed to be disposed of in Class III landfills, under special conditions, this quantity estimate almost certainly understates the true quantity. While the types of material generated vary, the bulk of the 1987 reported designated wastes consisted of contaminated soils, metal sludges, drilling muds, asbestos-containing waste, tank bottom waste, and oil water separation sludge. We have no estimate of the total designated waste needs of Santa Clara County generators.

### **Santa Clara County**

Santa Clara County anticipates a need for proper disposal facilities (Class II) for designated wastes through the planning period (the year 2000) and beyond. Based on the track record of waste designations made by State regulatory agencies, the county will probably continue to need disposal or treatment capacity for handling hazardous wastes which have been "designated." These wastes include contaminated soils, hospital and other incinerator ash, various types of sludges and muds, and other organic materials. While the total need for a Class II facility cannot be estimated at this time it is clear that access to such a facility is the preferred option for managing these wastes. The use of Class I facilities for designated wastes limits the availability of Class I sites for hazardous waste disposal, for which they were designed. Class I sites should be available for disposal of treated hazardous wastes until Class II facilities are approved for the disposal of hazardous wastes. At the time of this writing the feasibility of a new Class III site which would include a designated waste or Class II cell, is being explored due to a proposal for such a facility which is

FIGURE 4-2. STATE WATER RESOURCES CONTROL BOARD  
TITLE 23, SECTION 2532

*Class II: Waste Management Units for Designated Waste*

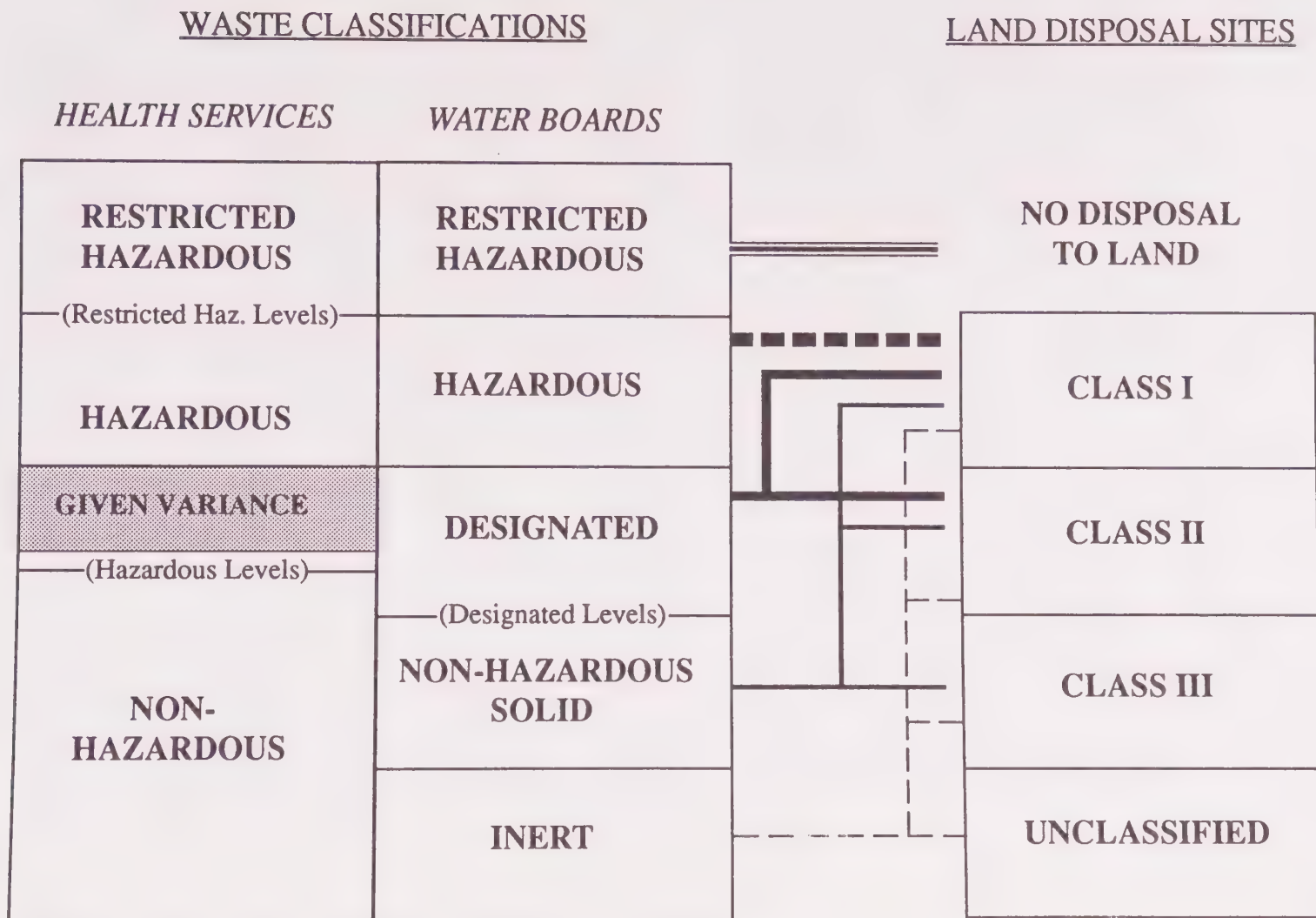
- a. *Class II waste management units shall be located where site characteristics and containment structures isolate waste from waters of the state. The classification criteria in this section shall be used for reclassification of existing waste management units at disposal sites approved as Class I, limited Class II, or Class II-1 under previous regulations, and existing waste management units used for treatment and storage, whether or not classified, provided that no hazardous wastes, other than those designated in Section 2522(a)(2), have been discharged at such units, and any expansion of such units.*
- b. *Geological Setting*
  1. *New and existing Class II landfills or waste piles shall be immediately underlain by natural geological materials which have a permeability of not more than  $1 \times 10^{-6}$  cm/sec and which are of sufficient thickness to prevent vertical movement of fluid, including waste and leachate, from waste management units to waters of the state as long as wastes in such units pose a threat to water quality. Class II units shall not be located where area of primary (porous) or secondary (rock opening) permeability greater than  $1 \times 10^{-6}$  cm/sec could impair the competence of natural geological materials to act as a barrier to vertical fluid movement.*
  2. *Natural or artificial barriers shall be used to prevent lateral movement of fluid, including waste and leachate.*
  3. *A liner system which conforms to the requirements of Article 4 of this subchapter with a permeability of not more than  $1 \times 10^{-6}$  cm/sec shall be used for landfills and waste piles when natural geological materials do not satisfy the requirements in subsection (b)(1) of this section.*
  4. *Class II surface impoundments are not required to comply with the requirements of subsection (b)(1) of this section, but shall have a liner system designed in accordance with the applicable provisions of Article 4 of this subchapter. Class II surface impoundments which are designed and constructed with a double liner system in accordance with Article 4 may use natural geological materials which comply with subsection (b)(1) of this section for the outer liner.*

FIGURE 4-2. (CONTINUED)

5. *Land treatment facilities are not required to comply with the requirements of subsection (b) of this section. Dischargers who treat or dispose of wastes in land treatment waste management units shall demonstrate, prior to application of the waste, that waste can be completely degraded, transformed, or immobilized in the treatment zone. To demonstrate this, prior to the application of waste, the discharger shall operate a test plot for a sufficient period to give regional boards a reasonable indication that degradation, transformation, or immobilization will take place in the treatment zone. During the full-scale operation of the land treatment unit, soil and soil-pore liquid samples shall be taken within the treatment zone to verify that complete degradation, transformation, or immobilization is taking place. Regional boards shall specify in waste discharge requirements the elements of the land treatment program including the dimensions of the treatment zone. The maximum depth of the treatment zone shall not exceed 5 feet from the initial soil surface.*
- c. *Flooding - New and existing Class II waste management units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period.*
- d. *Ground Rupture - New Class II waste management units, other than land treatment units and expansions of existing Class II units, shall have a 200 foot setback from any known Holocene fault. Other units may be located within 200 feet of a known Holocene fault, provided that containment structures are capable of withstanding ground accelerations associated with the maximum credible earthquake.*
- e. *Rapid Geological Change - New and existing Class II waste management units may be located within areas of potential rapid geological change if containment structures are designed, constructed, and maintained to preclude failure.*
- f. *Tidal Waves - New and existing Class II waste management units may be located in areas subject to tsunamis, seiches, and surges if designed, constructed, and maintained to preclude failure due to such an event.*

Note: Authority cited: Section 1058, Water Code, Reference: Sections 13172 and 13360, Water Code.

**FIGURE 4-3. WASTE AND SITE CLASSIFICATIONS USED IN CALIFORNIA**



*See Appendix IV-B for definitions of Class I, II, and III sites.*

currently being explored by County agencies. The proposal indicates a proposed capacity of about 2 million cubic yards. As Class II capacity becomes unavailable in the Bay Area, designated wastes will continue to be shipped out of the area, sent to Class I or hazardous waste sites or be handled on a case-by-case basis by State and local agencies until Class II capacity becomes available.

## INFECTIOUS WASTE

While the area of infectious wastes regulation is currently undergoing investigation, federal and state hazardous waste control laws do include provisions for the regulation and management of infectious wastes. These regulations may undergo significant alteration over the next year or two as a number of proposed and pending federal and state legislation influence this area of regulation, and as the DHS Task Force on Infectious Waste continues to examine the State's infectious waste policies (the Task Force Agency membership includes DHS and Environmental Health Departments from two or three counties within the state).

Provisions for the regulation and control of infectious wastes are codified within the regulatory framework of the State Hazardous Waste Control Law (California Code of Regulations, Title 22 Division 4, Chapter 30, Article 13). These regulations are intended to control the spread of infectious diseases by regulating the management of infectious wastes. The State Hazardous Waste Control Law includes infectious wastes as a category of hazardous waste, and requires the DHS to adopt regulations for the safe management of infectious wastes.

While the DHS Task Force crafts a regulatory definition of "infectious waste," state and federal laws already indicate that this category of wastes includes "isolation wastes" which are generated by hospitalized patients who are isolated to protect others from communicable diseases; cultures and stocks of infectious agents and associated biologicals; human and animal blood and blood products, pathological wastes, e.g. tissues or organs that are removed during surgery; contaminated sharps

including needles and syringes; contaminated animal carcasses; wastes from surgery and autopsy; lab wastes; dialysis unit wastes; and contaminated equipment. See Appendix IV-C for fuller descriptions of these waste types.

The state regulations apply to all generators of more than 100 kilograms of infectious waste per month, and all licensed health care facilities regardless of the amount of infectious waste generated. The regulations require a generator to contain and separate infectious wastes at the point of origin or where they are produced. Containment must protect against animals, rain, wind, and must not provide a breeding place or a food source for rodents or insects. The statute has provisions for appropriate containment of various types of infectious wastes (See Appendix IV-D). All containers are to be marked with warnings in both English and Spanish. Generators of less than 100 kilograms per month are currently exempt from hazardous waste manifesting, tracking, and regulated disposal practices.

Local health officers or environmental health programs enforce the infectious waste provisions and provide inspections, while the Toxics Division of DHS is responsible for permitting any off-site commercial waste management facilities which handle infectious wastes. Storage, treatment, incineration and disposal facilities which handle more than 100 kilograms per month are permitted and inspected directly by DHS. The local health officer or DHS must approve a waste-producing facility if the infectious waste is to be contained for more than four days, unless it is frozen (e.g. 0 degrees C). No specific approval is required for containment for less than 90 days on-site if the waste is kept frozen. Even if the waste is kept frozen, the facility must either have written approval or a valid hazardous waste facility permit issued by DHS if the waste is to be stored over 90 days on-site or 96 hours off-site. These materials should not be unintentionally compacted as viruses can become airborne.

### **Management of Infectious Waste**

The owner of an off-site facility which stores or treats infectious waste must have a valid permit from DHS. Producers of more than 100 kilograms (kg) per month must

use a registered hazardous waste hauler for transport of these wastes. Manifests are not required. Under the regulations, liquid and semi-liquid infectious wastes may be disposed of in sewers. Other infectious waste must be incinerated, autoclaved (steam sterilized), sent to land disposal under specified conditions, or disposed of by some other method approved by DHS. Infectious wastes which are sent to Class III landfills must be either incinerated or autoclaved prior to disposal to meet current regulatory conditions. At the time of this writing there are no Class III landfills in Santa Clara County which have been approved to receive treated or untreated infectious wastes. Treated infectious wastes can be disposed of in Class III landfills.

### **Santa Clara County**

Santa Clara County generators of infectious waste currently manage and dispose of infectious wastes by (1) incinerating or autoclaving the waste on-site, e.g., hospitals; (2) using licensed hazardous waste haulers to ship the waste out of the county for treatment, e.g. to Alameda County; (3) returning materials such as sharps to suppliers for treatment or disposal; (4) disposing of the waste to solid waste or Class III landfills which are approved and permitted to receive such treated materials; and (5) simply throwing it into the garbage to be hauled away with other refuse. There are no estimates available regarding the amount of infectious waste which is generated within the county, region, or state.

Those who generate less than 100 Kg/month of infectious waste are currently exempt from tracking, manifesting and regulated management and disposal requirements for infectious waste. However, AB 109 (Hayden) was introduced in the State Legislature in January, 1989 and proposes to bring all small generators of infectious waste into the regulatory system for infectious waste management and disposal. The introduction of this bill, in combination with many other requests for attention to the smaller generator of infectious waste, is expected to result in more stringent control of infectious waste generator practices at the state level. In addition, the Santa Clara County Environmental Health Department has also drafted a County

Infectious Waste Policy which is currently being examined by an ad hoc committee of infectious and other hazardous waste generators and representatives of public agencies. This policy has been formulated in response to concern for the adverse health effects to workers and the public that can result from improper collection, storage or disposal of infectious waste. The County's draft policy (like the pending state legislation) would also cover small unlicensed producers both under existing infectious waste regulations and for some expanded requirements for infectious waste collection and disposal planning.

According to DHS records, at present there are ten off-site incinerators in California which are permitted to treat infectious waste. Two of these facilities are fully permitted (American Environmental in Sacramento and Keystone in San Bernardino) while eight possess interim status documents. Only five of these eight facilities were operating as of January 1989.

As the population of Santa Clara County is expected to grow through the planning period, the need for and provision of medical, dental, research and other services which generate infectious waste can also be expected to rise. The County will encourage and, where appropriate, require proper management and disposal practices for these wastes. In addition, there is a need for generator education and training about proper handling and management of infectious wastes. Proper practices include rendering the waste noninfectious on-site; collection by a registered infectious waste hauler for treatment or disposal at an authorized facility; and proper tracking, manifesting, management and disposal of infectious waste as prescribed in current regulations and pending legislation.

## CHAPTER 5

### PROJECTED HAZARDOUS WASTE GENERATION

#### INTRODUCTION

In order to determine future hazardous waste management needs for the Bay Area counties, projections of future hazardous waste generation to the year 2000 for industrial generators were developed by the Association of Bay Area Governments (ABAG). These "baseline projections" exclude any waste reduction potential. Projections for site cleanups, small quantity generators (SQGs), and household hazardous waste (HHW) were developed by the County based on methodologies suggested in the Technical Reference Manual.

The ABAG methodology estimates future hazardous waste streams that come from economic activity in the nine counties of the San Francisco Bay Area region. Included in the forecasting model are data for the nine counties that comprise the ABAG region. The following section on projections relied heavily on reports prepared by ABAG staff. These forecasts are limited to industrial production and do not include estimates of hazardous waste that are generated by households.

#### HAZARDOUS WASTE PROJECTIONS FOR OFF-SITE MANAGED WASTES: SOURCES, METHODS, AND LIMITATIONS

ABAG staff has developed a model to forecast hazardous waste generation levels by both large and small quantity industrial generators based on industry-specific economic output levels. Briefly, the method uses economic activity projections by county and industry sectors for the year 2000 to predict waste generation levels for that year. The model assumes that the relationship between waste generation and

economic output level in 1986 remains constant throughout the forecast period. The following calculation was performed for each sector on a county by county basis:

$$\frac{\text{Waste Produced in 1986} \times \text{Output in 2000}}{\text{Output in 1986}} = \text{Projected Waste}$$

The ABAG forecasting model used 1986 manifested wastes by 2 digit Standard Industrial Classification (SIC) groupings and projects quantities of waste for the year 2000 by the same SIC groupings (see Appendix V-A). The model develops coefficients (Appendix V-B) which are multiplied by projected outputs in a specific industry group. For example, in industry Group 3 (electrical machinery, equipment and supplies) coefficients are determined by each of the 56 waste categories that are generated by that industry. The waste specific coefficients are then multiplied by the year 2000 industry output for SIC code 36 to determine the amount of any type of waste produced by the electrical machinery, equipment, and supplies industry (see Appendix V-B for the assignment of industrial sector to SIC groups and the resultant industry sector growth multiplier). As shown in Table 5-1, the end of the century industrial hazardous waste production is estimated to total 127,510 tons. This estimate assumes that waste will be generated at the same rate per unit of output as in 1986, so no technological changes or waste reduction levels were incorporated into this estimate. Waste reduction efforts that generators were practicing in 1986 will influence the forecast but any waste reduction efforts (i.e., technological changes, recycling, improved housekeeping) implemented following 1986 are not accounted for in these projections. This scenario for year 2000 estimates will be referred to as the "base case". Since waste reduction is a central element of this planning process, however, ABAG has incorporated waste reduction estimates into the second stage of their forecast. This method of incorporating waste reduction estimates is described below.

**TABLE 5-1. PROJECTED QUANTITIES OF OFF-SITE INDUSTRIAL HAZARDOUS WASTE IN THE YEAR 2000, SANTA CLARA COUNTY**

Waste Group	Total Quantity of Manifested Waste Shipped Off-site (Tons)	Generalized Treatment Method
Waste Oil	14,840	Oil Recovery
Halogenated Solvents	4,080	Solvent Recovery
Non-Halogenated Solvents	21,170	Solvent Recovery
Organic Liquids	18,620	Other Recycling
Pesticides	30	Aqueous Treatment -Organic
PCBs & Dioxins	870	Incineration
Oily Sludges	7,570	Oil Recovery
Halogenated Organic Sludges & Solids	560	Incineration
Non-Halogenated Organic Sludges & Solids	3,770	Incineration
Dye & Paint Sludges & Resins	2,010	Incineration
Metal-containing Liquids	7,310	Aqueous Treatment Metal/Neutralization
Cyanide & Metal Liquids	20,730	Aqueous Treatment Metal/Neutralization
Non-Metallic Inorganic Liquids	50	Aqueous Treatment Metal/Neutralization
Metal-containing Sludges	12,850	Stabilization
Non-Metallic Inorganic Sludges	1,690	Stabilization
Contaminated Soil	0	Incineration
Miscellaneous Wastes	11,360	See Next Page
<b>TOTAL</b>	<b>127,510</b>	<b>N.A.</b>

Source: ABAG

**TABLE 5-1a. PROJECTED MISCELLANEOUS WASTE SHIPPED OFF-SITE  
BY SANTA CLARA COUNTY GENERATORS IN THE YEAR 2000**

California Waste Category	Tons	Treatment Method
141 Off-spec, Aged or Surplus	170	Stabilization
151 Asbestos-containing Waste	0	Stabilization
162 Other Spent Catalyst	20	Stabilization
172 Metal Dust	70	Other Recycling
181 Other Inorganic Solid Waste	5,130	Other Recycling
311 Pharmaceutical Waste	100	Stabilization
322 Biological Waste Other than Sewage Sludge	10	Aqueous Treatment Organic
331 Off-spec, Aged or Surplus Organics	140	Other Recycling
511 Empty Pesticide Containers 30 gal	20	Other Recycling
512 Other Empty Containers 30 gal	2,090	Other Recycling
513 Empty Containers 30 gal	1,350	Other Recycling
541 Photochemicals/processing Waste	800	Other Recycling
551 Laboratory Waste Chemicals	1,280	Other Recycling
561 Detergent and Soap	70	Other Recycling
581 Gas Scrubber Waste	30	Aqueous Treatment- Metals/Neutralization
591 Baghouse Waste	20	Stabilization
612 Household Wastes	60	Other Recycling
<b>TOTAL</b>	<b>11,360</b>	<b>N.A.</b>

Source: ABAG

## INCORPORATION OF WASTE REDUCTION POTENTIAL INTO THE YEAR 2000 ESTIMATES

As previously described, the "base case" figures do not incorporate any estimates of future waste reduction potential. Predicting waste reduction levels is extremely difficult because they can be influenced by many factors. Most often, these factors are economic and regulatory pressures. The price of treating or disposing of waste effects the behavior of industry. As the cost of treatment or disposal increases, economic incentives to reduce hazardous waste in the production process increase. Correspondingly, regulations place legal constraints on the production of hazardous wastes. The combination of the two will have substantial impacts on hazardous waste generation from the production process.

Several methods were examined in an attempt to predict the overall impact of waste reduction efforts on the volume of waste produced in the region. Industry representatives were surveyed and interviewed by County staff to try and estimate reduction figures. Santa Clara County Tanner staff was able to develop a set of potentially useful information although incomplete at the time of this writing. The data from Santa Clara County was very specific to defense and semiconductor industries, however, and not applicable to other industries. The range of reduction estimates was from 10% to 100% on a process-specific basis. The one hundred percent reduction estimate is accomplished by substitution of nonhazardous components for hazardous material.

ABAG staff and the projections subcommittee also reviewed the California Department of Health Services (DHS) Hazardous Waste Minimization Workbook to determine how applicable these numbers might be for the region. The four-digit SIC code groupings proved to be too specific since ABAG data was only coded with 2-digit SIC codes and the number of 4-digit SIC industries identified by the DHS Hazardous Waste Minimization Workbook was limited. (See Appendix V-C for definition of Standard Industrial Classifications, SIC). In an attempt to try and use these data in some way, ABAG Staff looked at the percent contribution of each of the

4-digit codes to the overall 2-digit groupings in each county. For all counties except Contra Costa, the contribution to the overall 2-digit SIC code grouping from the more specific 4-digit group identified in the workbook was very small. Based on this information, it was decided that the estimates in the workbook were not applicable to the region as a whole. In the case of Contra Costa County, County staff stated that local industry representatives did not feel the DHS estimates were representative of their situation primarily because one of the processes described in the DHS document (under SIC code group 2911) is not practiced by Contra Costa County refineries. Thus the projections subcommittee felt that even in this case these percentages did not appear applicable.

Although the DHS Hazardous Waste Minimization Workbook was determined to not be useful on a county by county or industrial sector-specific basis, reduction estimates presented did give us a general idea of waste reduction potentials. Waste reduction potentials outlined in the workbook range from a minimum of 5% for sludge produced for SIC code group 2491, wood preserving, to a maximum of 63% for metal parts cleaning processes using acid or alkaline cleaners.

In an effort to estimate a waste reduction range for the region the 5% reduction figure appeared too low to use as a minimum. It was generally felt that economic incentives alone would increase the minimum waste reduction per unit of output by most industries to at least 10%. The 63% figure appeared too high, since it would require five pounds of waste to be reduced for every eight pounds of waste currently generated. It was felt that a reduction of this magnitude is an unrealistically high expectation in most industries. Based on these data and other discussions, it was decided that a reasonable range for a waste reduction estimate per unit of output for the region would be a minimum of 10% and maximum of 40% over the forecast period. As better tools to estimate future reduction potential and as actual reduction levels become available, this information should be reviewed and incorporated into the planning effort.

These reduction estimates were then applied uniformly to the forecast estimates for the year 2000. Table 5-2 shows waste stream estimates for the base case (127,510 tons) and incorporating the reduction factors for each of the seventeen waste categories. Industrial hazardous waste production in the county is estimated to range from 76,510 tons to 127,510 tons in the year 2000. As shown in Figure 5-1, the major industrial sectors that will generate a significant portion of the projected wastes are electronics equipment and semiconductor products. These two sectors reflect the computer industry and related firms that have given this county the name Silicon Valley.

In addition to waste produced by industrial sources, separate estimates were developed for hazardous waste generation by small quantity generators (SQGs), households, and cleanup of leaking underground tanks and contaminated sites. For purposes of this initial effort, it was assumed that no reduction would occur for projected waste from households, SQGs or site cleanup.

Wastes from SQGs are included in the current and projected waste generation figures only and to the extent that wastes shipped off-site used the manifest system. Estimates of the current quantity of hazardous waste produced by SQGs were developed utilizing the "no-survey method". Estimates of future waste generation by SQGs were developed using growth factors from the ABAG forecasting model. The growth factors were applied to each industrial category identified in the "no survey" method. Using this method, it is estimated that SQG wastes in the year 2000 will grow to 71,500 tons (Table 5-3).

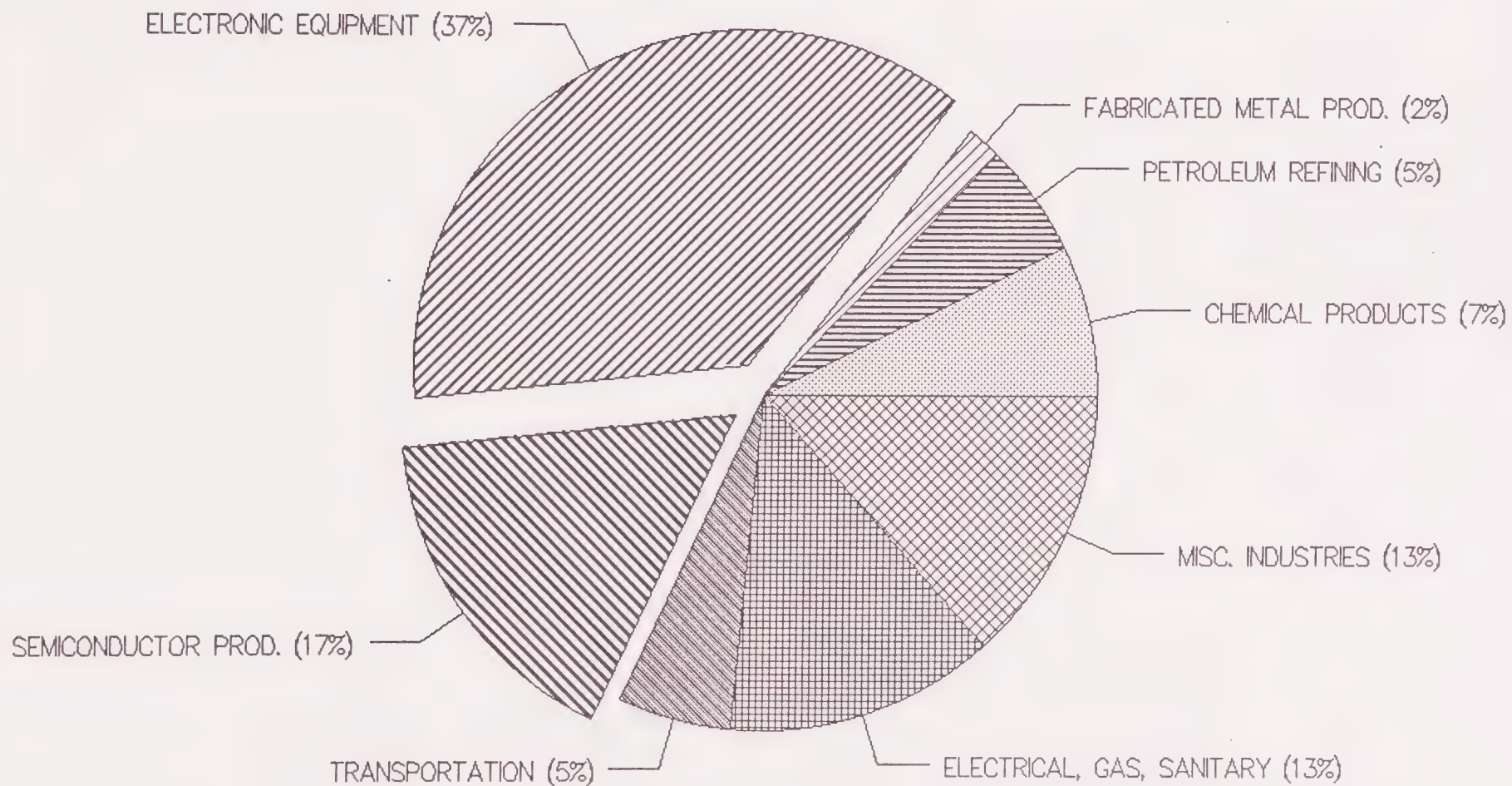
By the year 2000 it is estimated that over 75% of all SQGs waste will be the total is comprised of the waste category "waste oil". Halogenated solvents and non-metallic inorganic liquids make up another 10% of the total. The remaining groups are not projected to contribute significantly to the total waste stream.

**TABLE 5-2 . HAZARDOUS WASTE GENERATION PROJECTIONS BY WASTE GROUP IN SANTA CLARA COUNTY FOR THE YEAR 2000**

Waste Group	-----Estimated Tons-----		
	No Reduction	10% Reduction	40% Reduction
Waste Oil	14,840	13,360	8,900
Halogenated Solvents	4,080	3,670	2,450
Non-Halogenated Solvents	21,170	19,050	12,700
Organic Liquids	18,620	16,758	11,172
Pesticides	30	20	20
Dioxins	870	790	520
Oil Sludges	7,570	6,820	4,540
Halogenated Organic Sludges & Solids	560	500	340
Non-Halogenated Organic Sludges/Solids	3,770	3,390	2,260
Dye & Paint Sludges & Resins	2,010	1,810	1,200
Metal-containing Sludges	7,310	6,580	4,390
Metal-containing Liquids	20,730	18,660	12,440
Cyanide & Metal Liquids	50	50	30
Non-Metallic Inorganic Liquids	12,850	11,560	7,710
Non-Metallic Inorganic Sludges	1,690	1,520	1,020
Contaminated Soil	0	0	0
Miscellaneous Wastes	11,360	10,220	6,820
<b>TOTAL</b>	<b>127,510</b>	<b>114,760</b>	<b>76,510</b>

Source: ABAG

FIGURE 5-1. PROJECTED HAZARDOUS WASTE GENERATION BY INDUSTRIAL SECTOR, SANTA CLARA COUNTY, YEAR 2000



SOURCE: Association of Bay Area Governments.

**TABLE 5-3. TOTAL PROJECTED QUANTITIES OF HAZARDOUS WASTE GENERATION IN THE YEAR 2000 (Tons)**

Waste Group	Projected Industrial Waste	Projected Cleanup Waste	Projected SQG* Waste	Projected Household Waste	TOTAL
Waste Oil	14,840	0	54,000	270	69,110
Halogenated Solvents	4,080	0	0	10	4,090
Non-Halogenated Solvents	21,170	0	3,340	30	24,540
Organic Liquids	18,620	0	270	20	18,910
Pesticides	30	0	340	100	470
PCBS & Dioxins	870	0	40	0	910
Oily Sludges	7,570	0	0	0	7,570
Halogenated Organic Sludges & Solids	560	0	130	0	690
Non-Halogenated Organic Sludges & Solids	3,770	0	230	90	4,090
Dye/Paint Sludges & Resins	2,000	0	410	360	2,770
Metal-containing Liquids	20,730	0	490	0	21,220
Cyanide & Metal Liquids	50	0	140	0	190
Non-Metallic Inorganic Liquids	12,850	0	3,980	280	17,110
Metal-containing Sludges	7,310	0	320	0	7,630
Non-Metallic Inorganic Sludges	1,700	0	0	0	1,700
Contaminated Soil	0	5,570	0	0	5,570
Miscellaneous	11,360	0	7,810	810	19,980
<b>TOTAL</b>	<b>127,510</b>	<b>5,570</b>	<b>71,500</b>	<b>1,970</b>	<b>206,550</b>

\*Small Quantity Generator

Source: ABAG, Santa Clara County

Table 5-3 provides an estimate of the total projected quantities of hazardous waste that will require management for the year 2000. The four major sources of waste generation are large and small quantity industrial producers, projected cleanup waste, and household hazardous waste. At this time, no known new waste streams are expected due to new industries locating in the county. The combined projected waste for "the base" case is 206,550 tons for the year 2000.

With a 10% reduction in projected industrial waste the total aggregate waste stream would be 193,810 tons. With a 40% reduction in the projected industrial waste the aggregate total would be 155,560. The forty percent reduction level represents an overall increase of 12% over the 1986 level of waste generation. A 50 percent reduction in waste oil generation by SQGs, combined with a 40 percent reduction in industrial waste would result in a zero growth factor when compared to 1986 levels.

Estimates of residuals generation for the year 2000 are shown in Table 5-4. The residual generation multiplier was provided by DHS except for the "other recycling" treatment method. For purposes of this Plan a 20% factor was selected primarily because the wastes are to be recycled. However, it is recognized that for some wastes the residual may be greater. The 20% factor acknowledges that some residuals will still remain since 100% recycling for all wastes in this group is highly unlikely at this time. This multiplier may have to be adjusted as we gain further information on this issue.

Total residuals generation for the year 2000 is estimated to be 62,630 tons per year. This amount of residuals would be generated if the base case level or 206,550 tons of hazardous waste were generated in the year 2000. Should there be a reduction in the level of waste generation, there would be a corresponding level of reduction in the amount of residuals that would be generated.

The implications of various waste reduction efforts on the need for additional hazardous waste management facilities are discussed in Chapter 6.

**TABLE 5-4. TOTAL PROJECTED QUANTITIES OF RESIDUALS GENERATION,  
YEAR 2000 (Tons)**

<b>Generalized Treatment Method</b>	<b>Projected Capacity Requirement</b>	<b>Residue Generation Multiplier</b>	<b>Projected Quantity of Residuals</b>
Aqueous Treatment - Organic	470	10%	50
Aqueous Treatment - Metals/ Neutralization	38,520	50%	19,260
Incineration	14,030	10%	1,400
Solvent Recovery	28,630	20%	5,730
Oil Recovery	76,680	20%	15,330
Other Recycling	37,010	20%*	7,400
Stabilization	11,210	120%	13,450
<b>TOTAL**</b>	<b>206,550</b>	<b>N.A.</b>	<b>62,620</b>

\* The 20% residuals was established by the County for this category. Although this category of treatment is recycling, it is assured that some residuals would still be present. This figure may have to be changed as better information becomes available.

\*\* All numbers rounded to nearest 10

Source: Santa Clara County`

## CHAPTER 6

### HAZARDOUS WASTE MANAGEMENT OPTIONS

#### INTRODUCTION

Santa Clara County is typical of many urbanized areas where hundreds of facilities use hazardous materials and generate hazardous wastes. In the past these materials and wastes were routinely dumped into surface impoundments or unlined municipal or industrial landfills to minimize costs. Improper hazardous waste management practices were due in part to a lack of understanding of the potential problems associated with hazardous waste disposal practices. The lack of financial or legislative incentives available to handle hazardous wastes responsibly has also contributed to governmental and business decisions which have resulted in improper management of these materials for many years. Only in the last decade have legislative and enforcement actions begun to focus on hazardous waste management.

More recently, even guided by an outpouring of new hazardous waste and materials regulatory programs, full compliance has been difficult to achieve. While much has been accomplished, including the startup of a County Environmental Health Generator Inspection Program and some reduction of hazardous waste generation by some of the county's major companies, far more remains to be achieved. Due to a lack of education, many generators, particularly small generators, remain unaware that they produce hazardous wastes which require special and increasingly expensive management. As a result, some mismanagement of hazardous waste continues.

The future for hazardous waste management is difficult to foretell with any accuracy. This fact is not surprising given the major changes which have occurred

in this area over the past few years. It is clear however, that responsible planning is needed to sustain Santa Clara County's economic base while protecting public health and safety and the environment from the adverse effects of a continued reliance on land disposal of untreated wastes. This planning will take place during a time of rapid change in hazardous waste management regulations, liability, economics, technology, and public attitudes and education. Industry and government leaders must implement alternatives to land disposal while they work to clean up contamination from past mismanagement of hazardous wastes.

What is known is that Santa Clara County's manifested waste is similar to that of other industrialized, urbanized counties in California. Large volumes of solvents, waste oils, organic liquids, and metals in liquid solutions currently require management capacity. Contaminated soils will also continue to require some form of remediation, either on- or off-site, as the enforcement of hazardous waste regulations continues to lead to the discovery of contaminated sites in Santa Clara County. Chapter 1 included the goals that will guide the County's hazardous waste management planning effort in the years ahead. The following policy lays the framework for activities that will be instituted and maintained to achieve these goals:

Policy 1:

Hazardous waste management facilities which are sited within the county shall be designed and sized, consistent with the waste reduction goals identified in the Plan, to meet the needs of generators within this county and to meet the County's or individual cities' commitments under interjurisdictional agreements consistent with local planning criteria as determined by the local permitting authority.

This chapter explains both the public and private sector roles in hazardous waste management which will be relied upon to meet the needs of Santa Clara County's generators during the forecast period. It describes the current and projected hazardous waste management practices of Santa Clara County's generators including large and small commercial generators, households, public facilities and generators of unique wastes such as infectious wastes. The chapter is divided into three sections. The first section discusses current hazardous waste management

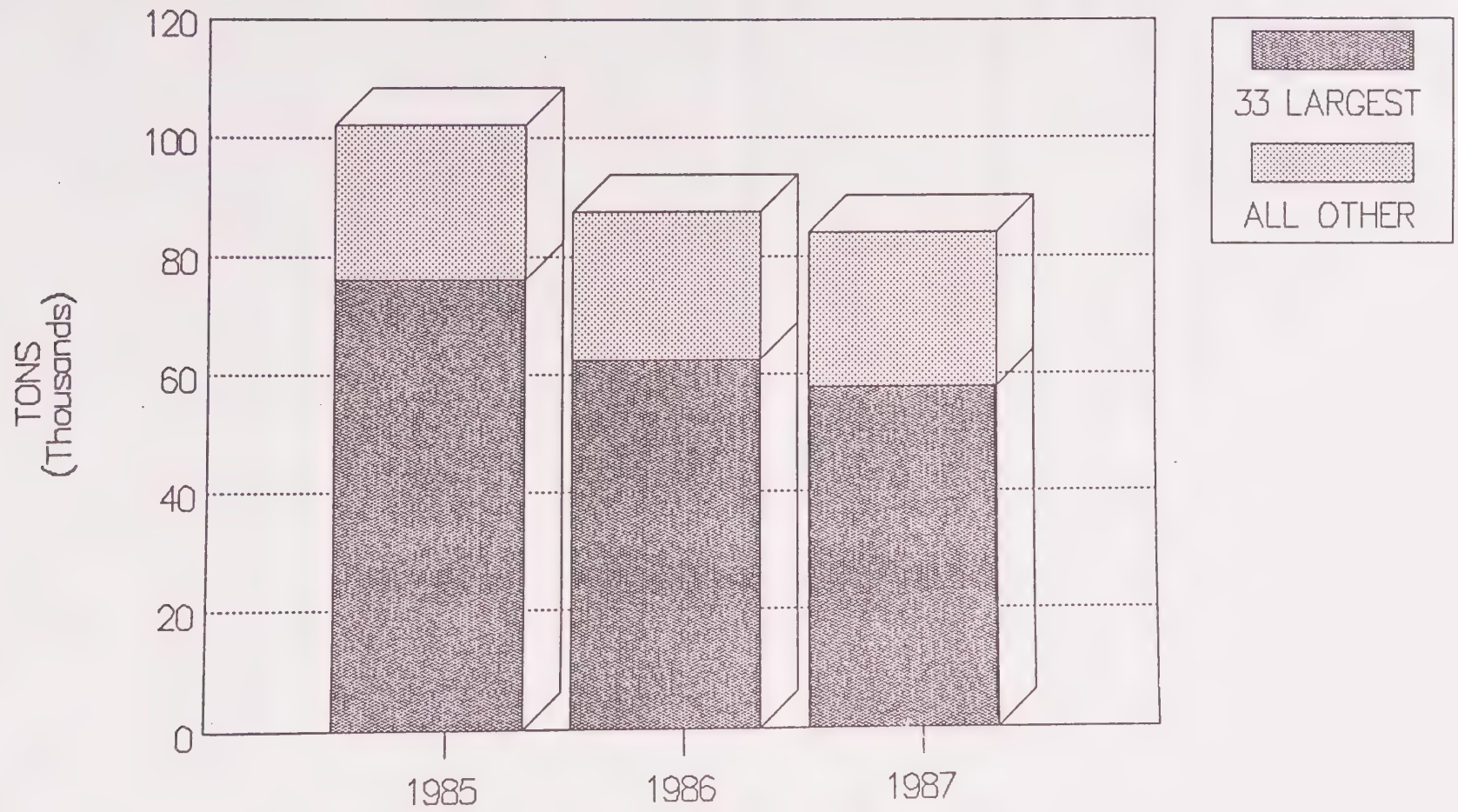
practices and the county's need for additional hazardous waste management capacity. The second section provides information on options which are available to meet the needs of Santa Clara's generators including: the potential for hazardous waste reduction, the use of existing and proposed hazardous waste management facilities both on-site and off-site within the county; the use of facilities outside the county which are available for use by Santa Clara County generators; and the signing of interjurisdictional agreements for hazardous waste management capacity. The final section describes some of the major factors which will influence the hazardous waste management choices which are faced by the County and its generators and suggests a course that will be followed in pursuit of the safest and most effective hazardous waste management system.

## **CURRENT WASTE MANAGEMENT PRACTICES**

Chapter 3 presented estimates of current hazardous waste generation in this county based upon the California Department of Health Services (DHS) manifest data for 1986, including one-time cleanup wastes. Based on the DHS manifest records, in 1986 generators reported 87,430 tons of hazardous waste shipped off-site from Santa Clara County. 1500 generators appeared in manifest data in 1986, but only thirty three of these generators, including some treatment, storage or disposal facilities (TSDFs), account for about 70% of the county's manifested waste (Figure 6-1 and Table 6-1).

As indicated in Chapter 3, about one third of the total estimated off-site waste flow (primarily from smaller generators) from Santa Clara County was not reported in the DHS manifest system. This figure is approximate at best due to the fact that much of this waste is waste oil which can sometimes be picked up by a route service hauler. In this case a manifest would not necessarily trace the waste back to the original generator. Some of this waste was recycled, and as noted above, some was probably disposed of improperly. In addition, if a generator does send hazardous waste to a private TSDF, but fails to fill out a manifest completely, this data is

**FIGURE 6-1. MANIFESTED HAZARDOUS WASTE,  
SANTA CLARA COUNTY, 1985 - 1987**



**TABLE 6-1. MAJOR GENERATORS OF HAZARDOUS WASTE IN  
SANTA CLARA COUNTY, 1985 - 1987 (Tons)**

FACILITY NAME	CITY	1985	1986	1987
ALLIED PUMPING	San Jose	5,468	3,130	676
ALVISO IND. OIL CO.	Alviso	3,170	3,820	8,819
CHEM. SYSTEMS DIVISION	Santa Clara	1,772	1,100	855
DYSAN	S.C., S.V.	529	570	805
FAIRCHILD	Milpitas	1,861	1,440	1,578
FMC	San Jose	5,956	4,750	3,475
GENERAL INSTRUMENTS	Palo Alto	1,702	64	47
GREAT WESTERN	Milpitas	98	1,690	2,120
GRENEX	Sunnyvale	231	640	1,674
HEWLETT-PACKARD	P.A., S.C., S.J., M.V., S.V.	6,367	4,950	3,843
INTEL	Santa Clara	1,877	850	1,245
IBM	San Jose	15,469	11,640	5,255
IT CORPORATION	San Jose	846	530	58
KAISER CORPORATION	Cupertino	501	500	344
KOLTRON	Sunnyvale	224	630	577
LEVIN CORPORATION	San Jose	1,094	200	60
LOCKHEED	S.V., P.A.	1,221	2,320	2,606
MEMOREX	Cup., S.C.	2,352	1,600	992
NATIONAL SEMICOND.	Santa Clara	709	590	517
POLYMETRICS	Sunnyvale	697	35	6
RAYTHEON	Mtn. View	687	1,890	1,840
SAFETY KLEEN	San Jose	2,362	2,630	2,205
SANTA CLARA CIRCUITS	Santa Clara	600	609	80
SANTA CLARA VALLEY OIL	Santa Clara	1,276	600	1,030
SOLVENT SERVICES	San Jose	6,863	7,870	8,985
SOUTH BAY CHEMICALS	Gilroy	4,138	2,230	1,933
SUMMIT CORP.	Mtn. View	530	534	28
TANDY	Santa Clara	625	690	1,079
VLSI TECHNOLOGY, INC.	San Jose	665	384	276
VSM, INC.	San Jose	1,116	550	940
WESTINGHOUSE	S.J., S.V	638	680	715
XIDEX	S.V., S.C	890	1,000	1,664
ZYCON	Santa Clara	3,536	1,860	1,388
<b>TOTAL</b>		<b>76,070</b>	<b>62,576</b>	<b>57,716</b>

SOURCE: Department of Health Services, Hazardous Waste Information System, 1985-87

Key: Cupertino-Cup.      San Jose-S.J.  
Mtn. View-M.V.      Santa Clara-S.C.  
Palo Alto- P.A.      Sunnyvale-S.V.

entered into a suspense file. There seems to be no way to determine the number of Santa Clara County manifests in the DHS suspense file. We must assume, then, that a portion of the total number of submitted manifests are absent from the DHS summary data upon which we base our initial planning estimates. The generators who do use the manifest system, however, make up the bulk of the Santa Clara County waste stream. These facilities utilize a combination of both on- and off-site waste management practices.

### **On-site Waste Management**

Many of the firms which use the DHS manifest system (as well as others) also employ a variety of on-site hazardous waste management practices. These include on-site recycling, neutralization of acids, and precipitation of metals in on-site treatment units. In an effort to identify the types of on-site waste management currently utilized in Santa Clara County, interviews were conducted with the sixteen known and fully permitted on-site TSDFs within the county. These 16 facilities have all submitted Annual Facilities Reports to DHS for 1986. Table 6-2 illustrates the types of on-site treatment capacity which currently exist inside the county, including solvent recovery; aqueous treatment metals/neutralization for non-metallic inorganic liquids, metal-containing liquids, and metal-containing sludges; and in-tank and drum storage. Additionally, there are over 200 known on-site TSDF's within the county that possess a variance from permit requirements that allows various kinds of treatment to be conducted on-site as well as storage of a generator's own waste for more than 90 days. From the County's perspective, the priority for siting new facilities should rest with the hierarchy of hazardous waste management practices. In other words, the development of on-site capacity is preferred over off-site capacity for wastes that cannot be reduced or economically recycled. These facilities provide hazardous waste management capacity close to the source of generation, thereby reducing transport of hazardous waste both in and outside the county. Most, if not all, of these on-site treatment systems will require permits from DHS. The permitting process can be a major stumbling block in both

**TABLE 6-2. ON-SITE TREATMENT AND STORAGE OF HAZARDOUS WASTE IN SANTA CLARA COUNTY, 1986**

Generalized Treatment Method	Quantity Treated On-Site (Tons)	Capacity of Treatment Method (Tons)	Percentage of Capacity Used
Aqueous Treatment	—	—	—
Organict	—	—	—
Aqueous Treatment	2,425,530	5,238,530	46%
Metals/Neutralization	—	—	—
Incineration†	—	—	—
Solvent Recovery	25 tons	70 tons	36%
Oil Recovery†	—	—	—
Other Recycling†	—	—	—
Stabilization†	—	—	—

†None reported for this treatment method.

Storage Method	Average Monthly Storage (Tons)	Capacity (Tons)	Percentage of Capacity Used
Container	1,420	6,540	22%
Tank	25	60	42%

Note: These figures include on-site TSDF's which have submitted an Annual Report to the State. Facilities that have been granted a variance or an interim status permit are not included in this first round of calculations.

time and money for many generators. The County should explore ways in which the permitting process can be accelerated so that on-site treatment capacity will be available. Due to liability constraints, most on-site facilities will most likely continue to meet only the needs of the on-site generator and will not be available for the commercial use of other generators.

### Off-site Facilities

Santa Clara County presently has fourteen permitted private commercial off-site TSDF's. These facilities are available to transfer, treat, store and otherwise manage hazardous waste from a variety of generators that are based both within and outside the county. Table 6-3 documents what is known about the commercial storage capacity of these facilities. Table 6-4 provides a summary of the capacities of these facilities as well as information about the quantity of wastes which were treated or disposed of at these facilities during 1986. According to Table 6-4, these facilities together were used to treat, recycle, recover, or stabilize approximately 16,000 tons of hazardous waste in 1986; 10,550 tons of which were generated within Santa Clara County. Table 6-4 also indicates that none of these facilities was utilized to capacity in 1986.

**TABLE 6-3. COMMERCIAL HAZARDOUS WASTE STORAGE CAPACITY AND ACTIVITY IN 1986**

Storage Method	Average Monthly Quantity of Wastes in Storage for Over 90 Days (Tons)	Storage Capacity (Tons)	Percentage of Storage Capacity Used
S01 Container	481.2	3903.8	12.3%
SO2 Tank	90.3	352.8	26.6%
S03 Waste Pile	NA		
S04 Surface Impoundment		NA	

TABLE 6-4. COMMERCIAL HAZARDOUS WASTE MANAGEMENT FACILITY  
CAPACITY IN SANTA CLARA COUNTY, 1986

FACILITY NAME	CITY	GENERALIZED TREATMENT METHOD	CAPACITY (TONS)	CAPACITY USED
Bayday Chemical	Santa Clara	<i>Solvent Recovery</i>	252	72%
Boliden Metech, Inc.	Gilroy	<i>Other Recycling</i>	250	1.3%
ECS Refining	Santa Clara	<i>Other Recycling</i>	24	1.7%
Great Western Chemical	Milpitas	<i>Aqueous Treatment Metals/Neutralization</i>	minimal; only for own acids and packaging	
Interstate Parts	San Jose	<i>Solvent Recovery<sup>1</sup></i>	N/A	N/A
IT - San Jose Transfer	San Jose	---	N/A	N/A
Micro Metallics, Inc.	San Jose	<i>Other Recycling</i>	87	42.5%
Safety - Kleen Corp.	San Jose	<i>Solvent Recovery</i>	5,600	60%
Safety Specialists	Santa Clara	<i>Aqueous Treatment/ Organics</i>	N/A	N/A
		<i>Neutralization</i>	N/A	N/A
		<i>Solvent Recovery<sup>2</sup></i>	N/A	N/A
Safe - Way Chemical	San Jose	<i>No on-site treatment</i>	N/A	N/A
Santa Clara County Ag. Commissioner	San Jose	<i>Primarily a storage facility</i>	N/A	N/A
Solvent Services	San Jose	<i>Aqueous Treatment Metals/Neutralization</i>	17,692	15.3%
		<i>Solvent Recovery</i>	26,208	15.2%
		<i>Stabilization</i>	21,036	7.3%
South Bay Chemical	Gilroy	<i>Aqueous Treatment Metals/Neutralization</i>	1,651	79.5%
		<i>Other Recycling</i>	N/A	N/A
Van Waters & Rogers (Univar Corporation)	San Jose	<i>Aqueous Treatment Metals/ Neutralization</i>	1,533	25%

<sup>1</sup> primarily pick-up and supply of new solvents      <sup>2</sup> transfer of solvents

SOURCE: Dept. of Health Services & Santa Clara County Tanner Staff.

At the present time, minimal expansion is planned for these facilities. Some additional capacity is expected in the "general treatment method" (see Table 6-5), "aqueous treatment metals/neutralization," and in the transfer of waste for small quantity generators as well as the recycling of hazardous waste. The main reasons that minimal expansion is being planned within the county include difficulty in obtaining permits from DHS, market forces including uncertainty, and public opposition to the building or expansion of hazardous waste management facilities.

**TABLE 6-5. PROJECTED COMMERCIAL HAZARDOUS WASTE TREATMENT/ DISPOSAL CAPACITY IN SANTA CLARA COUNTY, Year 2000 (Tons)**

Generalized Treatment Method	Capacity From Existing Facilities	Capacity From Proposed Facilities	Loss of Capacity From Closing Facilities	Projected County Capacity
Aqueous Treatment Organic	0	0	0	0
Aqueous Treatment Metals/ Neutralization	20,870	6,200	0	27,070
Incineration	0	0	0	0
Solvent Recovery	23,100	0	0	23,100
Oil Recovery	0	0	0	0
Other Recycling	410	0	0	410
Stabilization	21,040	0	0	21,040
Residuals Disposal	0	0	0	0

## Use of Off-site Facilities Outside Santa Clara County

Table 6-6 provides information on the use of hazardous waste management facilities outside of Santa Clara County by Santa Clara's generators. The generators in this county rely heavily upon four sites located within three counties in California as well as some out-of-state facilities. DHS manifest records do not currently track accurately California wastes that are shipped out of the state.

The four major sites which have been utilized within California by the county's generators for hazardous wastes (other than contaminated soils) are (1) Chemical Waste Management's Kettleman Hills Site in Kings County; International Technology's (2) Vine Hill/Baker and (3) Panoche facilities in Contra Costa and Solano Counties; and (4) the Casmalia Resources Facilities in Santa Barbara County. During 1986 generators based in Santa Clara County shipped 48,560 tons or 47% of the county's manifested wastes to these four sites, mainly for landfilling or placement in surface impoundments. The balance of the manifested hazardous wastes were sent to other in-county and out-of-county facilities.

Some of these wastes are sent to off-site facilities within the county, but most of the waste streams are currently managed at facilities in other counties and out-of-state. As indicated earlier, wastes that are not reported in the DHS manifest system are not so easily tracked. The hazardous waste management needs which are addressed in the remainder of this chapter are based upon the needs of generators that do utilize the DHS manifest system.

### **SANTA CLARA COUNTY WASTE STREAM IN THE YEAR 2000: THE NEED FOR ADDITIONAL CAPACITY**

In this section the projected hazardous waste management needs for the year 2000 are estimated. The waste stream estimates shall consider not only industrial manifested waste but wastes from small quantity generators, households, and

**TABLE 6-6. DESTINATION OF (MANIFESTED) WASTE GENERATED  
IN SANTA CLARA COUNTY, 1986**

DISPOSAL COUNTY	TONS	% TOTAL
Alameda	200	.2%
Contra Costa <sup>1</sup> (IT Facility)	23,660	27%
Fresno	1,210	1%
Imperial	10	.02%
Kern	410	.4%
Kings (Kettleman Hills Facility)	13,500	15%
Los Angeles	6,270	7%
Sacramento	100	.1%
San Bernadino	220	.2%
San Diego	30	.03%
San Francisco	50	.05%
San Mateo	6,880	8%
Santa Barbara (Casmalia Facility)	9,350	11%
Santa Clara	10,550	12%
Solano	4,280	5%
Stanislaus	30	.03%
Unknown <sup>2</sup>	10,420	12%
Other (primarily out-of-state)	260	.3%
<b>TOTAL</b>	<b>87,430</b>	<b>100%</b>

<sup>1</sup> No longer operating

<sup>2</sup> Represents all wastes unaccounted for under the Hazardous Waste Manifest System. This primaril includes: wastes sent out-of-state and "suspense files" (manifest forms submitted incomplete and/or illegible).

one-time site cleanup wastes as well. The potential impact of both moderate and aggressive waste reduction on the county's waste stream and waste management needs will be examined in the following sections, as will the status of on-site and off-site facilities. Both the level of waste reduction which can be achieved in this county and the availability of hazardous waste management capacity, will in great part determine the scenario which unfolds in hazardous waste management during the planning period and beyond.

Given the shortfalls in available data, the County recognizes that all estimates of hazardous waste management capacity needs are approximate at best. With this fact in mind, by the year 2000 manifested industrial hazardous waste from Santa Clara County is expected to total 127,510 tons. This estimate assumes that waste will be generated at the same rate per unit of output as in 1986. No technology changes or waste reduction levels are incorporated into this estimate. If the "base case" for the year 2000 were to occur a total of 127,510 tons of hazardous waste treatment capacity would be required by the year 2000. This figure includes only manifested industrial waste and is based upon ABAG estimates of hazardous waste generation. An adjusted estimate of hazardous waste generation in the year 2000 also includes waste from small quantity generators (71,500 tons), waste from household collection events (1,980 tons), and wastes from underground tanks (5,570 tons). The adjusted estimate does not include contaminated soils from site cleanups other than underground tanks. It also does not include wastes which were generated within the county and sent out-of-state (over 14,000 tons in 1986). Recognizing these idiosyncrasies the total adjusted estimate of hazardous waste generation for the year 2000 is 206,550 tons.

In examining off-site hazardous waste management capacity which currently exists within Santa Clara County, in regards to the needs of generators located within the county, a shortfall appears in the following general treatment methods: incineration, oil recovery, aqueous treatment for metals/neutralization and organics, stabilization, and other recycling (see Table 6-7). Santa Clara County

generators continue to need access to facilities which can provide these types of hazardous waste management options. The county possesses excess capacity in both solvent recovery and stabilization. Based upon current treatment requirements (as defined by DHS) the DHS waste groups can be classified into 8 types of treatment methods which will be needed by Santa Clara County generators during the forecast period (see Table 6-8). These methods include precipitation for waste metal solutions; neutralization for non-metal solutions; carbon adsorption for aqueous organic solutions; distillation for spent solvent or waste oil; and incineration and stabilization for solid and some liquid waste organics.

The hazardous waste management needs of small quantity generators (SQGs) and households must also be taken into account in planning for hazardous waste management capacity. SQGs include auto repair shops, dry cleaners, gas stations, photo processing and printing shops, machine shops, and public works facilities. Typical wastes from these facilities include plating wastes, contaminated solvents, paint sludges, acids, photographic solutions, and pesticide wastes. Because the wastes generated by these firms are diverse and are generated in small amounts, owners and managers often have a difficult time disposing of them in an environmentally and economically sound manner. Waste haulers are resistant to accepting small amounts of waste because of excessive handling and shipping costs. As a result, some small generators are now using alternative methods for managing their waste streams. These methods include (1) milk-run pickups which involve transport firms that specialize in hazardous substances (The firms arrange to pickup hazardous substances from a variety of companies in a single geographic area.); (2) the pickup of used chemicals by chemical distribution companies and their return in a reclaimed form; (3) "commingling" of similar types of oils and solvents which are picked up from a group of similar businesses and then "commingled" in a tank on the truck; and (4) recycling options which depend upon the type and volume of waste produced, and the type and degree of contamination.

**TABLE 6-7. SANTA CLARA COUNTY NEEDS ASSESSMENT FOR  
COMMERCIAL HAZARDOUS WASTE TREATMENT/  
DISPOSAL CAPACITY, 1986 (Tons/Year)**

GENERALIZED TREATMENT METHOD	REQUIRED TREATMENT CAPACITY	EXISTING TREATMENT CAPACITY	CAPACITY EXCESS (+) OR DEFICIENCY (-)
Aqueous Treatment - Organics	30	0	-30
Aqueous Treatment - Metals/Neutralization	23,210	20,870	-2,340
Incineration	11,120	0	-11,120
Solvent Recovery	14,030	26,460	+12,430
Oil Recovery	15,930	0	-15,930
Other Recycling	16,440	410	-16,030
Stabilization	6,670	21,040	+14,370

SOURCE: Department of Health Services

**TABLE 6-8. SANTA CLARA COUNTY PROJECTED NEEDS ASSESSMENT FOR  
COMMERCIAL HAZARDOUS WASTE TREATMENT/  
DISPOSAL CAPACITY, Year 2000 (Tons/Year)**

GENERALIZED TREATMENT METHOD	PROJECTED COUNTY CAPACITY REQUIREMENT	PROJECTED COUNTY CAPACITY	PROJECTED CAPACITY (+) OR DEFICIENCY (-)
Aqueous Treatment - Organics	470	0	-470
Aqueous Treatment - Metals/Neutralization	38,520	6,200	-32,320
Incineration	14,030	0	-14,030
Solvent Recovery	28,630	23,100	-5,530
Oil Recovery	76,680	0	-76,680
Other Recycling	37,010	410	-36,600
Stabilization	11,210	21,040	+9,830
Residuals	62,620	0	-62,620

SOURCE: Department of Health Services

As noted in Chapter 4, household hazardous waste (HHW) is currently collected periodically at one-day events by some of the cities within Santa Clara County. Approximately 2,000 tons of HHW were collected during these events throughout 1986. Currently about one percent of the population of the sponsoring cities participates in HHW collection events. Through the implementation of collection and educational programs, we can expect a reduction in HHW which is thrown into the trash, spilled down the sewer, or stored for long periods of time in garages, basements, and closets.

How will Santa Clara County's generators meet their waste management capacity needs between now and the year 2000? As noted earlier, the hazardous waste management choices which are available to Santa Clara County's generators depend primarily upon the availability of treatment facilities within and outside the county, and the extent to which hazardous waste generators are able to reduce their hazardous waste generation.

## **OPTIONS AVAILABLE TO MEET COUNTY NEEDS**

It is the County's intention to provide for the hazardous waste management needs of its generators by first reducing hazardous waste generation, by siting appropriate and economically feasible hazardous waste management facilities for waste streams which cannot be reduced, and by signing intercounty agreements with other counties as a means of utilizing needed and available hazardous waste management capacity in other jurisdictions. Aggressive waste reduction will reduce some of the needs for hazardous waste management capacity. Others will be met by the use of existing treatment technologies. Still others will require the use of new and evolving technologies such as mobile or transportable treatment units.

## Hazardous Waste Reduction

The topic of waste reduction is dealt with more completely in the next chapter. For purposes of estimating waste management needs, the effects of achieving waste reduction goals of 10% and 40% are addressed in this chapter using the "base case" figure of 127,510 tons. In actuality, these numbers should be higher to include waste from small generators. If 10% or minimal waste reduction is achieved across all waste treatability categories (see Chapter 5, Table 5-2) approximately 114,760 tons of hazardous waste will require treatment capacity in the year 2000. This scenario would require the continued availability of current hazardous waste management facilities as well as access to expanded or additional facilities which are sited within the county and/or available through intercounty agreements with other jurisdictions. This scenario will probably require some dependence on the siting criteria in Chapter 8 as facilities for a number of treatment needs will be required.

The 10% or "Minimum Waste Reduction Scenario" really implies that Santa Clara County would abandon its emphasis on the priority of hazardous waste reduction in favor of a strategy of in-county, off-site treatment. This would mean that the County would have to provide sufficient capacity in waste treatment facility types to accept wastes from other counties, on a reciprocal basis. In other words, if waste reduction is not emphasized there will be a greater need to provide hazardous waste management capacity for Santa Clara County's generators.

The major impact from this alternative would be that more extensive expansion and development of off-site TSD facilities would have to take place, at a greater intensity. On the assumption of a 10% reduction across the board, the need for an aqueous treatment facility within the county would be less acute than the need for other types of treatment. Solvent recovery would be operating at only about 85% of capacity.

This outcome would require that the cost of off-site waste treatment would have to remain relatively attractive when compared to source reduction. Even relatively moderately priced TSDF services would prove too expensive for many generators, particularly SQGs. Unless sufficient resources were invested in regulatory compliance enforcement, illegal or improper hazardous waste disposal would still present a significant problem.

If moderate or 40% reduction is achieved, then 76,510 tons of hazardous waste management capacity will be required by industrial generators in Santa Clara County. This figure represents an amount of waste which is slightly less than that which was generated and sent off-site during 1987. This scenario will also require access to waste management facilities but will demand more active participation from industry in waste reduction programs. The need to expand or site new facilities would be reduced. It is likely however, that certain waste streams such as organic liquids, may be more difficult to reduce in the next few years and will still require the siting of facilities which are specifically designed to meet these needs.

### **Availability of Existing and Proposed Hazardous Waste Management Facilities**

While dramatic waste reduction efforts and increased on-site treatment are possible for many waste streams hazardous waste management facilities will still be needed to handle wastes at least for the immediate future. The second hazardous waste management strategy which will be used by Santa Clara County is to utilize new and existing waste management facilities and to facilitate the siting of facilities within the county which are needed primarily to manage wastes that have been generated within the county. The status of existing facilities gives the County some idea of the availability of capacity for use by Santa Clara generators both during the late 1980's and in the 1990's.

In general, many facilities that have been used by local generators in recent years, such as the IT sites in nearby Contra Costa and Solano Counties, have stopped

accepting waste. In fact, since late 1986 three of the five available land disposal facilities in the state have stopped accepting hazardous wastes. Some dependence on land disposal is shifting over to treatment units due to state and federal bans on land disposal of various hazardous waste streams (see Appendix VI-A). This trend will lead to the increased use of on-site treatment methods. New off-site facilities, however, are not as yet being sited to replace the lost off-site capacity, and proposed expansions to existing facilities will not meet the capacity needs of the county's generators. Generators who are based in and manifest waste in Santa Clara County are increasingly using commercial off-site facilities which are located in Southern California and out of the state.

Santa Clara County generators have relied heavily upon out-of-county facilities for most of their treatment needs. It is likely that Santa Clara County and other counties will continue to rely heavily upon a relatively small number of facilities (both existing and new) located throughout the state to serve generators' waste management needs. A number of reasons account for this. First, new facilities will be developed by the private sector and not by the County or city governments themselves. Local governments will probably not develop their own facilities to serve local generators. Second, counties that have sited existing or new commercial facilities cannot restrict their use to generators located within their jurisdiction. Local governments appear to be prohibited from limiting the use of permitted facilities by the interstate commerce clause in the U.S. Constitution. Finally, factors such as economies of scale, political opposition, and environmental and land use restrictions, make it likely that private waste management firms will focus on developing a relatively small number of larger facilities located to serve as many generators as possible. In other words, private developers of TSD facilities will ultimately determine where wastes will be treated and residuals disposed, based primarily upon economic factors. Generators from all counties and from out-of-state will be free to utilize any privately owned hazardous waste management facility.

At a minimum, counties must plan for all current and projected wastes generated within the county by identifying appropriate hazardous waste management facilities that will meet current and projected needs. Since most facilities will serve generators across wider geographic areas (as explained in the last section), it is highly unlikely that Santa Clara County would be able to assure its generators of the complete range of needed hazardous waste management services through the siting of facilities only within the county. In other words, if facilities are sited only to meet local needs and given the fact that trade cannot be restrained, the county's generators cannot be assured of preferential access to facilities which are sited within the county. Intercounty agreements then become important for providing access to hazardous waste management services. It may become necessary to exercise these agreements to make regional trades of hazardous waste. In addition, it is the County's policy to promote waste reduction and to accept the responsibility of managing this county's "fair share" of the hazardous waste stream as opposed to encouraging the siting of all types of facilities within the county, which to be economically feasible, will be sized to meet regional and sometimes multi-state needs for hazardous waste management capacity.

### **Status of Off-Site Facilities Outside Santa Clara County**

As stated earlier, Santa Clara County generators currently rely heavily on a number of off-site hazardous waste management sites which are located throughout the state. This plan must consider the status of these facilities and projections for their availability to Santa Clara County generators. This section characterizes the current waste management capacity of the major facilities in California. While none of these facilities are located within Santa Clara County, most of the units were utilized by Santa Clara County generators in 1986. During 1986, these nine facilities received over 50 percent of California's manifested hazardous waste. During the same year, waste management and disposal capacity at five of these facilities was dominated by land disposal capacity which consisted of landfills, waste piles, and surface impoundments.

As noted earlier in this chapter, some dependence on land disposal, however, is now shifting over to treatment units (both stationary and mobile) due to environmental problems at these sites, increased regulation, changes in hazardous waste market conditions, and the costs of cleanup which have been incurred by a number of generators. While treatment capacity has increased and will continue to increase as new treatment standards take effect in May 1990 (under state and federal landfill bans on untreated wastes), in the short-term the loss of land disposal capacity will probably be replaced by increased use of the remaining landfill units or by facilities located out-of-state.

Following are descriptions of the nine major off-site facilities which are used by California generators (descriptions rely heavily upon "Future Hazardous Waste Management Capacity at Key Off-site Facilities in California," prepared by Exceltech, Inc., January, 1988):

1. Chemical Waste Management Incorporated's Kettleman Hills Facility, Kings County

In 1986 Santa Clara County generators shipped 3,226 tons of oily wastes to the Kettleman facility as well as other miscellaneous wastes.

Active waste management units here include container storage, storage and/or treatment in tanks and surface impoundments, and disposal in a landfill. This facility can store approximately 1,300 55-gallon drums at any one time. Its cyanide treatment unit has a capacity of 6,000 tons per year. A stabilization unit treats reactive wastes, and liquid wastes are solidified. The PCB flushing unit removes PCB residues from transformers and other equipment.

The facility's active surface impoundments treat liquid organic, acid and metal wastes. These surface impoundments have a design capacity of approximately 64,000 tons.

The Kettleman Hills facility has a single landfill which accepts solidified organic, inorganic, and metal wastes. This unit has a remaining capacity of about 2 million cubic yards, with a life expectancy of five to seven years at current rates of disposal. Chemical Waste Management has also submitted to DHS a request for a permit to site an incinerator at Kettleman Hills with the capacity to treat liquid organic wastes and contaminated soils. The anticipated addition of a 50 million BTU per hour rotary kiln incinerator may provide

treatment capacity for 15,000 tons of solids or 5,000 tons of liquids each year. Treatment rates vary significantly depending upon the physical state and inherent potential energy stored within the hazardous waste. Disposal capacity in the year 2000 is unknown, but is assumed to reflect figures projected by Chemical Waste Management staff to 1995. An additional five cells of solids disposal capacity may be available totaling nearly 32 million tons.

2. International Technology Corporation's Vine Hill/Baker Facility, Contra Costa County

International Technology Corporation's (IT) Vine Hill/Baker facility is located east of Martinez. The Vine Hill site began handling hazardous wastes in 1967. The Baker facility started in 1970. In 1986 Santa Clara County generators shipped 22,535 tons (22%) of the county's manifested waste to this site.

This facility voluntarily stopped accepting almost all wastes in December 1987. Currently, it receives only oily wastes for recovery and a small quantity of liquid wastes which it burns in its incinerator. IT offered the Vine Hill/Baker facility for sale in December 1987. In March, 1988, IT announced plans to permanently close this facility. The closure process will involve removing existing wastes as necessary to prevent future releases, and cleaning up current contamination.

Prior to December 1987, active hazardous waste management units included storage, treatment in tanks, treatment or disposal in surface impoundments, an incinerator, and a centrifuge. The Vine Hill facility operated three surface impoundments in 1987 and numerous treatment processes including cyanide, sulfide, and organic oxidation; heavy metals and precipitation; acid-based neutralization; solids/oil/water separation; chromium reduction; odor reduction; air/nitrogen stripping; sludge dewatering; and liquid waste reduction. The small incinerator operated at this facility had a permitted capacity of approximately 23 million BTU/hour. In addition, the existing oil recovery facility is currently operating at a capacity of 40,000 tons per year. The Baker facility contains 78 acres of surface impoundments utilized for solar evaporation of hazardous waste effluent pumped via pipeline from the Vine Hill treatment units. The individual Baker surface impoundments range in size from approximately two acres to greater than 21 acres.

3. Casmalia Resources Facility, Santa Barbara County

The Casmalia Resources facility is located in the northwest portion of Santa Barbara County approximately 10 miles southwest of Santa Maria. This facility has been in operation since 1973. Casmalia accepted over 9,000 tons of waste from Santa Clara in 1986. 5,706 tons of metal-containing liquids comprised the majority of these wastes.

This facility's active units include surface impoundments, four landfills, and an acid neutralization unit. The number of active surface impoundments is declining steadily because the facility is systematically closing all of its RCRA surface impoundments.

The existing landfills are used for the disposal of different types of wastes, such as solvents, pesticides, acids, heavy metals and sludges, and caustic and cyanide wastes. The remaining landfill capacity is approximately 1.92 million cubic yards. At current rates of disposal, the life expectancy of these landfills is approximately 10 years.

The acid neutralization unit treats liquid acid and alkaline wastes. This unit's annual throughput is approximately 36,000 tons. It began operations in 1987.

4. International Technology Corporation's Panoche Facility, Solano County

IT's Panoche facility is located approximately two miles northeast of Benicia. This facility began operations in 1968. Historically, the Panoche facility contained surface impoundments, waste piles, and landfills.

DHS required this facility to cease accepting all hazardous wastes in December 1986. Santa Clara County generators shipped metal-containing liquids, non-metallic inorganic sludges, contaminated soils and miscellaneous wastes to this site until that time. In March, 1988, along with the Vine Hill/Baker facility, IT Corporation announced plans to permanently close this facility and complete the required closure process.

5. Romic Chemical Corporation, San Mateo County

This facility, located in East Palo Alto, consists of solvent and fuel recovery and incineration processes. Current capacities for these units are 20,000 tons per year for solvent recovery; 20,000 tons per year for fuel recovery; and 8,000 tons per year for incineration.

6. Safety Kleen Corporation, Fresno County

This solvent recovery plant is located in Reedly. This operation's annual throughput is between 25,000 and 29,000 tons. It primarily accepts spent mineral spirits and immersion cleaner, which are solvents used in parts cleaning. The facility has approximately 280,000 gallons (or 1,120 tons) of storage capacity.

7. International Technology Corporation's Imperial Facility, Imperial County

IT's Imperial County facility is located near Brawley. The primary unit at this facility is a landfill. However, it is currently not accepting wastes while its

containment systems (i.e., liners) are being checked for structural damage that may have occurred during the 1986 earthquake in Imperial County. The landfill has approximately 6 acres of remaining capacity.

8. Chemical Waste Management's Oil and Solvent Process Company (OSCO), Los Angeles County

This facility is located in Azusa, approximately 20 miles east of Los Angeles. OSCO reclaims spent solvent wastes by means of physical separation, distillation, and thin film evaporation. These processes physically separate reusable wastes from other materials. Waste residues (still bottoms, etc.) generated as byproducts from these treatment activities are manifested off-site for use as a supplemental fuels, for destructive incineration, or exchanged for reuse; many customers exchange their waste solvents for virgin or recycled product. The facility does not currently recycle waste oils.

Recycling activities are performed in 24 cone bottom tanks (5,000 gallons each), 2 blend tanks (28,000 and 4,200 gallons), 1 thin film evaporator, and 3 distillation units. OSCO also has a drum storage area with a capacity of 3,306 55-gallon drums. At present, OSCO could treat as much as 42,000 tons a year (approximately 10.5 million gallons) with existing equipment. However, expanding operations to this level may require permit modifications. The OSCO facility has had no permit violations, nor any enforcement actions known to be pending.

9. National Cement Company/Systech Cement Kiln Facility, Kern County

This cement kiln is near Lebec, about 70 miles north of Los Angeles and 60 miles southeast of Bakersfield.

The facility primarily receives industrial waste solvents that are burned in the cement kiln to recover their energy content. The waste streams accepted by the facility include mixed paint and solvent waste, still bottoms from solvent extraction, solvents no longer reclaimable, waste oils, and other organic liquid wastes.

In 1987, this facility received 20,000 tons of waste. The cement kiln currently is permitted to burn up to five million gallons of liquid waste (approximately 20,000 tons) each year. This throughput assumes that the kiln operates at a 25% maximum supplemental fuel rate (i.e., hazardous wastes provide 25% of the energy for operation of the cement kiln), 24 hours a day for 330 days a year. To date, this facility has not been cited for any major permit violations.

## Facilities Proposed Outside Santa Clara County

Several firms currently propose to expand existing sites and construct new facilities within California in the next few years. Known proposals follow:

1. Romic Chemical Corporation plans to expand solvent recycling capacity from 20,000 to 80,000 tons and its fuel recovery capacity from 20,000 to 50,000 tons. The company also plans to expand its incinerator's annual throughput from 8,000 to 20,000 tons.
2. Chemical Waste Management Inc. has already submitted plans to expand significantly its Kettleman Hills Facility. Proposed changes include expanding drum storage capacity to 8,500 drums; expanding its surface impoundment capacity to 180,400 tons by 1992; increasing annual throughput of its stabilization unit to 158,400 tons per year; adding 19.3 million cubic yards of landfill capacity by 1992; and taking initial steps to site a large scale incinerator by 1992. These plans are currently being reviewed by DHS and EPA.
3. Casmalia Resources has submitted plans to expand its landfill capacity to 4.9 million cubic yards and to increase its acid neutralization units capacity to 144,000 tons per year by the early 1990's. The company also plans to reactivate its existing wet air oxidation unit which was deactivated in 1987 for operating without an air permit. This unit is designed to treat cyanide and liquid pesticide wastes as well as liquid non-halogenated organic wastes.
4. OSCO submitted a permit renewal plan to DHS and EPA on February 19, 1988 which proposes the installation of new distillation, thin film evaporation and fractionation units, and the replacement of cone bottom tanks with fewer, larger tanks. The renewal also includes a drum storage and processing unit.

Other proposals for facilities within the State include a proposed incinerator in Vernon; proposed Blackwells Corner waste injection well in Kern County; and Stauffer Chemical Corporation's proposed incinerator in Contra Costa County. All of these proposals are under review by State and Federal regulatory agencies. In addition the use of mobile or transportable treatment units is being encouraged by DHS for some waste streams (see Appendix VI-B).

While the status of some of these aforementioned facility proposals is uncertain, a number of them appear to be experiencing limited public opposition to plans to

continue to operate as well as to expand some treatment capacities. Nevertheless, it may be unwise for the County to rely exclusively upon these facilities for the full range of hazardous waste management needs. Thus, the siting criteria in Chapter 8 and the discussion on the use of intercounty agreements in the next section of this chapter have been prepared to guide local jurisdictions and developers in future efforts to site environmentally and economically feasible facilities within Santa Clara County.

While the County is not aware of any formal proposals which have been submitted to DHS to construct a new off-site facility within Santa Clara County, a number of inquiries have been made during the Tanner planning process (from interested hazardous waste management firms) as to general areas in Santa Clara County which will be potentially "available" under this Tanner Plan for transfer and off-site treatment facilities.

### **The Utilization of Interjurisdictional Agreements**

The third strategy which Santa Clara County will utilize to provide for needed hazardous waste management capacity will be the signing of "interjurisdictional agreements" with other counties. An interjurisdictional agreement is an agreement that a county shall develop with other counties to be used as an implementation tool for planning for collective distribution and use of hazardous waste management facilities.

The County will enter into negotiations with other jurisdictions for the purpose of negotiating one or more interjurisdictional agreements for the siting of hazardous waste management facilities which are "adequate and necessary to meet the needs of the signatory jurisdictions." It is recognized that the waste streams in each county will probably not support an economically efficient hazardous waste facility of each type needed to handle a county's waste. Therefore, counties are encouraged to enter into such interjurisdictional agreements to balance economic efficiency in the size of

facilities and to responsibly handle their "fair share" of the wastes generated. The "fair share" principle implies that each county is responsible for the disposition of its own waste; that is, responsible for its "fair share" of waste management. A county cannot be required to accept a facility with a capacity that significantly exceeds the county's own needs (fair share), except as provided by an interjurisdictional agreement. If the County has approved the siting of a facility or facilities that have a capacity equal to or in excess of the county's total hazardous waste management needs, the County will have achieved its fair share of hazardous waste management facility siting and cannot be forced to accept the siting of additional facilities except as provided by an interjurisdictional agreement.

Interjurisdictional agreements may take into account both the volumes and degree of hazard of the wastes generated that require off-site management within each participating jurisdiction. The degree of waste reduction efforts made by the participating jurisdiction may also be taken into account. Santa Clara County's official policy concerning interjurisdictional agreements is to adopt the language on "fair share" which has been developed by the County Supervisors Association of California (See Appendix VI-C). An excerpt of the language, and the County's policy governing its use, follows:

"If the siting of a particular type of hazardous waste management facility needed in this county is not environmentally appropriate or economically viable, the county shall reach an agreement with one or more other jurisdictions to facilitate the siting of a larger, environmentally appropriate and economically viable facility (or facilities) to be located elsewhere. This County and its cities, in turn, agree to actively consider and, if appropriate, to commit as part of an interjurisdictional agreement to approve the siting of an environmentally appropriate facility (or facilities) within its own borders designed and sized to serve the hazardous waste management needs of other jurisdictions as well as of this county."

#### Policy 2:

It is the policy of the County that the fair share language contained in this Plan is only operative in conjunction with interjurisdictional agreements.

In summary, through the Tanner planning process, the County will actively seek to provide its unmet hazardous waste management capacity needs through any combination of the following: waste reduction, facility siting and interjurisdictional agreements. If the County has not provided for its unmet hazardous waste management needs by February 1, 1992 (either through waste reduction, facility siting, interjurisdictional agreements or any combination thereof), the County will solicit proposals for a privately owned hazardous waste management facility or facilities needed to manage the county's fair share of the hazardous waste stream. Proposals for hazardous waste management facilities will receive the full attention of the County planning staff and governing body. Additional planning resources will be allocated to the proposal, if necessary, to prevent excessive delays in the proposal evaluation process. The County will continue to actively seek to provide for its unmet hazardous waste management capacity needs until such time as the County has met those needs through any combination of waste reduction, facility siting or interjurisdictional agreements.

#### **KEY FACTORS THAT WILL INFLUENCE THE DEVELOPMENT OF OPTIONS FOR SANTA CLARA COUNTY GENERATORS**

Santa Clara County's hazardous waste management planning effort depends upon the ability to identify and analyze critical factors and trends as they influence the hazardous waste management system in the county, Bay Area region and the state. Some of these factors and trends have been identified throughout this chapter. In this section we examine the major factors which will influence and determine the hazardous waste management choices which will be available to Santa Clara County, cities within the county, and to the county's generators over the forecast period. This discussion will take into account many of the factors that have already been identified. The nine major factors described in detail below are (1) the degree to which generators can reduce hazardous waste generation; (2) economic growth; (3) future hazardous waste management changes; (4) public attitudes and education; (5) demand for waste management facilities; (6) availability of waste management

facilities; (7) regulatory trends; (8) feasibility of intercounty agreements; and (9) state taxation policies.

### **The Degree to Which Generators can Reduce Hazardous Waste Generation**

Earlier sections in this chapter discussed the potential of hazardous waste reduction which can be pursued by generators and assisted and encouraged by local government. The levels of waste reduction which can be achieved depend upon a number of factors. Among the most important ones are the level of management or corporate support for waste reduction and industry response based on this support; the ability of local government to incorporate waste reduction efforts into existing agencies and ongoing programs; and the degree to which current and future hazardous waste management practices and regulations are monitored and enforced. The establishment of waste reduction standards of some kind at the state and federal levels will give industry a consistent message at the policy level and would allow the inclusion of some standards or requirements for "best available technologies" or practices to be incorporated into current permitting procedures. Current regulations and costs of hazardous waste management have already moved industry to certain levels of waste reduction. Future waste reduction standards and requirements for waste reduction planning and multimedia waste reduction assessments are being examined at the state and federal levels. If Santa Clara County generators aggressively pursue the reduction of hazardous waste and the use of hazardous materials, they will undoubtedly be better able to comply with hazardous waste regulations as well as to cut their long-term costs of doing business in a competitive economic environment.

### **Economic Growth**

The type, manner, and extent to which Santa Clara County's economy changes over the forecast period will greatly affect hazardous waste management needs and problems in the county. The mix of industry types as well as the proportion of old

to new businesses will also influence hazardous waste management needs. There is a greater opportunity to new firms to adopt improvements in their hazardous waste management practices when designing a manufacturing operation. For instance, new firms can incorporate technical improvements to reduce waste generation.

### **Future Hazardous Waste Management Changes**

Future hazardous waste management will be different in a number of ways from hazardous waste handling practices of the past. Greater regulatory scrutiny, increased knowledge of how to manage hazardous wastes, and increasing economic incentives should, in general, reduce future contamination, especially from larger generators. New and more effective technologies will also play a role. For instance, mobile incineration units and bioremediation may be especially appropriate for on-site cleanup efforts, thereby reducing the need to ship contaminated soils off-site to hazardous waste management facilities.

### **Public Attitudes and Education**

Greater public awareness of toxics issues has brought emerging demands for new approaches to toxics management in general. These include public pressure to reduce the use of toxic substances in the first place, and reduction of other wastes within the manufacturing process; thereby reducing the need for new off-site treatment and residuals disposal facilities. There is also hope that as a result of greater public education and evidence of responsible management practices, that the state and region may experience a gradual drop in the level of fear about and opposition to siting of needed hazardous waste management facilities.

### **Future Demand for New Off-site Facilities**

This is a complex and key element to be considered in planning for a safe and effective hazardous waste management system. Future demand for new off-site

facilities will depend upon the type and size of hazardous waste generator involved. In general terms, large companies are driven by liability, economic goals, and to some extent, regulatory pressures. In Santa Clara County, 33 firms account for about 70 percent of the manifested waste stream. Rising waste management costs; enormous potential liabilities for cleanup of disposal sites; and regulatory demands for waste reduction are moving these larger firms toward source reduction and on-site treatment. Many of these firms are moving away from the need to use off-site facilities.

Many firms with less experience in handling chemicals and hazardous materials, including mid-sized companies, are also beginning to feel the same pressures of liability, economics, and regulation. Most of these firms will change more slowly than the largest generators to adapt to these pressures. They may also require assistance during this transitional period. Their demands for off-site capacity are not easily predicted. In the short run, their demands will probably increase as land disposal is phased out; but the needs should decline as they are able to implement greater source reduction, recycling, and on-site treatment.

Smaller generators will have the greatest difficulty in responding to the new set of pressures. In the near term these firms should add to the demand for off-site facilities as their hazardous wastes enter the hazardous waste management system, some of them for the first time due to the regulatory bans on land disposal. Their total contribution to the county's waste stream, however, is about one third of the total aggregate waste stream (includes out-of-state wastes).

Finally, a household hazardous waste education or collection effort may direct some of these substances from Class III (municipal disposal sites) to recycling or treatment facilities, or Class I sites. As the cost of Class I space rises and as treatment standards for these sites become more stringent, there will be more pressure to recycle and treat household hazardous waste.

It is evident that the hazardous waste management system dynamics reveal great pressures to reduce the demand for off-site facilities, along with a smaller demand for increased management of wastes off-site. The first set of pressures may discourage development of off-site facilities which are needed to manage the wastes which are not eliminated or managed on-site by industrial generators, as well as those wastes which are produced by smaller generators and households.

The consequences of these conflicting forces could be important to the development of the region's hazardous waste management system: some land disposal deadlines may be extended if sufficient treatment capacity is not available. Market demand will determine capacity but will also be defined by its absence or availability. The existence of these unequal pressures will require that Santa Clara County develop an implementation strategy that takes into account that the priorities of source reduction, on-site recycling, and treatment, may apply somewhat differently to different waste streams.

Second, other facilities such as stabilization units and transfer stations, as well as transportable units, will be sited and designed primarily to meet local needs for hazardous waste management. Third, public involvement should be considered in the off-site facility needs including those of small generators and households.

### **Availability of Hazardous Waste Management Facilities**

As examined earlier, current hazardous waste management practices are characterized by a continuing shift away from land disposal of untreated wastes to recycling and treatment of hazardous wastes with ultimate disposal in a "residuals repository". While it is difficult to say just how much hazardous waste management capacity will be needed by Santa Clara County generators between now and the year 2000, as explained in the last section, the types of waste management capacity which generators will require can be projected with some certainty. These types include precipitation for waste metal solutions; neutralization for non-metal

solutions; carbon adsorption for aqueous organic solutions; distillation for spent solvent or waste oil; and incineration for solid and some liquid waste organics. While the expansion of both on-site treatment systems for in-company use and also of some in-county off-site commercial TSDF's is expected to somewhat increase to meet some of these needs, a shortfall will probably remain in the county's hazardous waste management capacity.

Facility development will require some public sector involvement. First, due to the uncertainty which surrounds the demand for off-site facilities by large generators and the trend toward greater on-site waste management, it is likely that some off-site facilities will be sized to meet regional needs. This process can be facilitated by interjurisdictional cooperation on siting larger commercial facilities. This approach reflects recognition of economic realities which affect the future of the county's waste stream and the sizing of off-site facilities to meet economies of scale.

The ability of the County and the region to site and expand facilities will also depend upon a number of factors. These factors include (1) degree of difficulty in obtaining TSDF permits from State and Federal agencies; (2) environmental problems and their effects on facility operations and modifications; (3) new treatment standards which will be set by EPA, e.g. incineration at specified levels, for wastes which are currently being phased out of land disposal; (4) the pace of development and ease of utilization of new technologies or of new applications of technologies; (5) strength of public opposition or support for facilities; and (6) financial resources of waste management firms.

All of these variables will help to determine the availability of and the remaining need for hazardous waste management facilities over the forecast period.

## **Regulatory Trends**

Greater regulatory scrutiny in the area of hazardous waste and materials has already resulted in many changes in the way that industry handles hazardous waste. Hazardous waste generators will continue to adapt to these pressures as the bans on land disposal of untreated hazardous wastes continue to take effect and prescribe new treatment standards for specific hazardous waste streams. Legislative efforts to require waste reduction strategies and planning, as well as more stringent requirements on the use of hazardous materials, will be reintroduced at the state level (SB 14 and SB 2767). Regulatory agencies will continue to examine and in some cases tighten emissions and effluent standards for releases into the mediums of both air and water. In other words, pressures and incentives will increase to reduce waste discharges into all media – air, water, and land. Incentives for further waste reduction will be an important tool which is available at all levels of government to promote practices for reducing hazardous waste (and emissions and effluent), and for avoiding an increase in the improper disposal of hazardous waste which could result as the regulatory "land bans" and other standards alter the behavior of many hazardous waste generators.

## **The Development of Interjurisdictional Agreements**

The concepts of interjurisdictional agreements and the "fair share" principle were discussed earlier in this chapter. Because under "fair share" counties cannot be required to accept a facility with capacity that significantly exceeds its own needs, the key factor influencing the use of interjurisdictional agreements to provide for hazardous waste management capacity will be the ability of counties to develop and maintain working agreements.

The counties in the San Francisco Bay Area have recognized the need for regional cooperation in siting hazardous waste management facilities which can serve regional shortfalls in capacity. Through existing ABAG (Association of Bay Area

Governments) infrastructure, the nine Bay Area counties have formed an MOU creating the "Regional Hazardous Waste Management Capacity Allocation Committee." The intent of the committee is to allocate facility capacity planning responsibilities based on identified regional capacity shortfalls and the "fair share" principle. Once the allocations are formalized, the ABAG agreement will constitute the major portion of Santa Clara County's planned use of interjurisdictional agreements to provide for hazardous waste management capacity. Santa Clara County will continue to participate in efforts to clarify these agreements and to test their adequacy in the coming years.

### **State Taxation Policies**

Another factor which greatly affects industry's hazardous waste management practices is California's taxation policy for hazardous waste. Often the costs of managing and disposing of hazardous waste within the state are higher than the cost of shipping hazardous waste out-of-state for treatment and disposal. Thus these policies result in an incentive to ship wastes to other states for California hazardous waste generators.

### **CONCLUSION**

The future for hazardous waste management remains difficult to foretell with any accuracy. It is clear, however, that responsible planning and implementation can help to sustain Santa Clara County's economic base while protecting public health and safety and the environment from the adverse effects of a continued reliance on land disposal of untreated hazardous wastes. This effort will require both private and public sector involvement and cooperation. The private sector will largely determine how to meet regulatory requirements such as state and federal bans on the land disposal of untreated hazardous wastes by May 8, 1990. Hazardous waste generators, especially large companies, will also choose the methods they will employ to reduce their own hazardous waste generation. Companies which choose

to pursue waste reduction aggressively should find that they are better able to remain competitive while they also help to renew public confidence in hazardous waste management practices which are utilized by generators within the county and in the region.

Private developers will be responsible initially for proposing the siting and expansion of environmentally and economically feasible management facilities both within and outside Santa Clara County. Simultaneously, public sector involvement will be needed to assist in achieving maximum waste reduction and also in coordinating facility siting if the response from developers is not adequate to meet the remaining and evolving needs of Santa Clara County's generators. In this case, the signing of intercounty agreements or a similar mechanism will be coordinated by local governments and used to achieve consensus in planning for hazardous waste management capacity.

As explained earlier in the chapter, the forecast period will be one of rapid change in hazardous waste management regulations, liability, economics, technology, and public attitudes and education. During this period, the pursuit of aggressive waste reduction, the expansion and construction of new on-site treatment facilities close to the sources of waste generation, and the use of interjurisdictional agreements will all decrease the need to site additional commercial off-site hazardous waste management facilities within Santa Clara County. It is likely that an expected shortfall in hazardous waste management capacity will remain for those wastes which cannot be further reduced or recycled. In this case the siting criteria in this plan, in conjunction with a risk assessment for all off-site facility proposals, will be used to guide the development of hazardous waste management facilities in Santa Clara County. The alternative to providing needed hazardous waste management services may involve improper management and disposal practices.

As the County enters into the forecast period and into a period of rapid change in factors which affect the need for hazardous waste management capacity, it will be

vital to aid industry, public facilities, and small generators in their efforts to permit on-site recycling and treatment facilities and especially, in the aggressive pursuit of source reduction and other waste minimization practices.

In Chapter 11 of this plan, specific strategies are laid out which suggest a course of action in hazardous waste management that recognizes the different needs of large generators, smaller generators, public facilities, and households within Santa Clara County. Despite a set of hazardous waste management conditions and trends which presents a "moving target" for Santa Clara County planners, an implementation strategy which recognizes the factors that are described in this chapter will leave the County better prepared to respond and adapt to new conditions and changing data while continuing to protect public health and safety and the Santa Clara County environment.



## CHAPTER 7

### HAZARDOUS WASTE REDUCTION

#### INTRODUCTION

While the County acknowledges that it is not possible to eliminate all hazardous waste generation by industry, small business, public facilities, and households, and recognizes the corresponding need to provide for responsible waste management capacity, it is also the County's policy and top priority to significantly reduce the generation of hazardous waste "as expeditiously as possible." As used in this plan, the policy of "waste reduction" refers to the lessening, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored, or disposed.

#### Incentives for Waste Reduction

Economic incentives for industry to reduce their hazardous waste generation are growing. At present, the two primary incentives to reduce waste generation are resulting reductions in: (1) waste management costs and regulatory compliance to industry in the form of disposal fees, raw material costs, and hauler fees; and (2) costs of future liability associated with hazardous waste disposal. In recognition of these existing economic incentives for industry to reduce hazardous waste generation, the Environmental Protection Agency (EPA) has chosen not to require mandatory performance standards and waste reduction practices at the federal level. The EPA is, however, in the process of analyzing and quantifying on-going waste reduction efforts to report back to Congress on the need for a waste reduction regulatory program.

While mandatory standards for waste reduction are not currently in effect, several statutory requirements have resulted in the initiation of waste reduction programs

by affected generators. These statutory requirements, summarized in Figure 7-1, include:

- Restrictive land disposal regulations which include a May 8, 1990 deadline that prohibits disposal of untreated hazardous wastes in hazardous waste land disposal facilities;
- The waste manifest system; and
- Biennial generator report requirements which include a certification that waste reduction practices are in place at the generator site if "economically and technologically practicable".

### **Need for a Local Waste Reduction Program**

Although the statutory requirements like those summarized in Figure 7-1 were designed to encourage waste reduction by hazardous waste generators, many generators (particularly small and medium-sized businesses and public facilities) lack the information necessary to meet the requirements (i.e., current regulatory requirements, waste reduction procedures, and technologies). Much of this information and technical expertise could be provided to county generators through a local waste reduction program. In approving the Tanner Bill, the state legislature found that "a solution to the safe and responsible management of hazardous waste also requires improved programs of waste and source reduction and recycling, and encouraging on-site treatment of hazardous wastes." Implementing a local waste reduction program appears to be the most positive step local governments can take to decrease the potential threats to environmental and public health posed by the generation of hazardous waste.

This chapter discusses the primary components of the County's proposed waste reduction program. Implementation steps for the proposed program are more completely described in Chapter 11.

FIGURE 7-1. REQUIREMENTS AND DIRECTIVES RELATED TO WASTE REDUCTION

A number of state and federal laws require waste reduction and recycling efforts. Other legislation limits the disposal of waste to land, thereby providing regulatory incentives for waste reduction. Still other activities at the state and federal levels set up clear policy direction for the development of state and local waste reduction programs.

### FEDERAL LEVEL

**LEGISLATION:** RCRA - 1984 Hazardous and Solid Waste Amendments

**RELATION TO WASTE REDUCTION:** Amended RCRA to include a congressional mandate for waste minimization; declared that waste reduction or elimination of hazardous waste, whenever possible, is a national policy.

**REQUIREMENTS:** For all waste shipped off-site the generator is required to sign a certificate that states: 1) a program is in place to reduce the volume or toxicity of such waste to the degree determined by the generator to be economically practical; and 2) the proposed method of treatment, storage or disposal is the most practical method currently available which minimizes the threat to human health and the environment. Generators must also submit biennial reports to EPA which describe their efforts to reduce the volume and toxicity of waste generated.

**LEGISLATION:** RCRA 1984 Amendments

**RELATION TO WASTE REDUCTION:** The Hazardous and Solid Waste Amendments also brought generators of between 100 and 1000 kilograms (220 and 2200 pounds) of hazardous waste per month under the regulatory jurisdiction of RCRA.

**REQUIREMENTS:** All of the requirements in RCRA which apply to hazardous waste generators.

**POLICY DIRECTIVE:** EPA report to Congress on the desirability and feasibility of national regulations to compel adoption of waste reduction techniques.

**RELATION TO WASTE REDUCTION:** Report concluded that mandatory programs were not feasible in 1984.

**REQUIREMENTS:** EPA was directed by Congress to collect and analyze data from generators and to re-assess the need for statutory authority on waste reduction in a 1990 follow-up report.

**LEGISLATION:** HR 2800 (Wolpe) and its companion bill pending in the Senate.

**RELATION TO WASTE REDUCTION:** This bill, if passed, would improve EPA data collection and dissemination regarding the "*reduction of toxic chemical emissions across all media*," assist states in providing information and technical assistance about waste reduction, and "*for other purposes*."

**REQUIREMENTS:** The bill in its late 1988 form would add mandatory questions on waste reduction to the SARA Title III reporting form. It would also provide an additional \$8 million for competitive state waste reduction grants annually for 3 years; and \$4 million for the federal Office of Pollution Prevention clearinghouse.

**LEGISLATION:** RCRA Subtitle D and Amendments

**RELATION TO WASTE REDUCTION:** The 1984 RCRA Amendments required states to have had a permit program in place by November 1987 for solid waste facilities which received small quantities of hazardous waste (e.g., from households). California has had such a program in place since 1979. During 1989 new Subtitle D regulations which pertain to solid waste management will prohibit hazardous waste from solid waste facilities. Studies have led to these new rules which will provide more stringent criteria in both operational and siting facets of California's ongoing solid waste permitting program.

### STATE LEVEL

**REGULATIONS:** California Hazardous Waste Control laws

**RELATION TO WASTE REDUCTION:** All hazardous waste generators including those that generate less than 100 kilograms per month are required to comply with California Codes (see below).

**REQUIREMENTS:**

- 1) dispose of hazardous waste only at a permitted facility;
- 2) obtain a permit from DHS for storing waste on-site for longer than 90 days;
- 3) transport waste shipments by using the services of a registered waste hauler accompanied by a manifest which is filed with DHS;
- 4) Section 25185 of the Health and Safety Code authorizes DHS to conduct inspections to ensure compliance with State law. Santa Clara County signed an MOU with the State in 1987 when the County Environmental Health Department gained the authority to permit, inspect, and monitor the County's hazardous waste generators.
- 5) operators of waste management facilities must obtain liability insurance.

**LEGISLATION:** Hazardous Waste Management Act of 1986

**RELATION TO WASTE REDUCTION:** This law restricts the disposal of liquid and untreated hazardous wastes to land disposal facilities beginning in 1988.

**REQUIREMENTS:** Restricts disposal of untreated wastes to land as of May 8, 1990 unless the waste is generated from site clean-up efforts or has been treated to meet DHS treatment standards. (*also, see Appendix 5-3 for federal "land bans"*)

**LEGISLATION:** AB 685 (Farr), The Hazardous Waste Reduction, Recycling, and Treatment Research and Demonstration Act

**RELATION TO WASTE REDUCTION:** Provides grants to cities, counties, and private organizations for the commercial demonstration of hazardous waste reduction, recycling or treatment technologies.

**REQUIREMENTS:** Grant application process; annual deadline is December 1st.

FIGURE 7-1. (continued)

**LEGISLATION:** 1979 Hazardous Waste Control Act (Title 22, California Code of Regulations, Section 22-66796 for listing)

**RELATION TO WASTE REDUCTION:** This law requires DHS to prepare and update a list of hazardous wastes that are technologically and economically feasible to recycle.

**REQUIREMENTS:** DHS must:

- 1) establish the California Waste Exchange;
- 2) establish a list of recyclable hazardous waste (*effective as of 1/4/85 in Title 22 as indicated above*); and
- 3) encourage recycling and waste exchange.

Generators must submit a justification to DHS for disposing of any hazardous waste that is considered to be recyclable.

**LEGISLATION:** 1978 Used Oil Recycling Act

**RELATION TO WASTE REDUCTION:** Requires that used oil be collected and recycled to the "*maximum extent possible*."

**REQUIREMENTS:** The California Waste Management Board (CWMB) is directed to prevent the illegal disposal of petroleum-based wastes and to encourage and promote used oil recycling.

**LEGISLATION:** 1986 Management of Used Oil Bill (Title 22, Division 20, Chapter 6.5, Article 13)

**RELATION TO WASTE REDUCTION:** Encourages used oil recycling by acknowledging the availability of technology to recycle used oil into useful products.

**REQUIREMENTS:** Used oil is to be collected and recycled, to the maximum extent possible, by means which are economically feasible and environmentally sound.

**LEGISLATION:** AB 1809 (Tanner) requires that the state formulate policies to guide local government in their efforts to provide services for the management of household hazardous substances.

**RELATION TO WASTE REDUCTION:** The intent of the bill is to "*educate the public about the products used in daily life which contain hazardous substances and then provide practical procedures for their disposal*."

**REQUIREMENTS:** Each County must include a program for the safe management of household hazardous wastes in its solid waste management plan, to the extent that the County determines a need for such a program. Also authorizes any local jurisdiction to increase its solid waste collection fees, or to levy charges or assessments, in order to offset the costs to establish, publicize and maintain its household hazardous waste management program.

FIGURE 7-1. (continued)

**LEGISLATION:** SB 14 (Roberti) requires generators to evaluate all potentially viable source reduction approaches for all major waste streams and assess the effectiveness of previously implemented hazardous waste management procedures.

**REQUIREMENTS:** Generators over 13 tons per year must prepare two documents: (1) Source Reduction Evaluation & Review Plan, and (2) Hazardous Waste Management and Performance Report. Certification of the plan by a registered engineer (or environmental assessor) and the owner (or authorized individual) of the site is required.

**PENDING LEGISLATION:** AB 496 (Hayden) defines the term "source reduction" as "any practice which either causes a net reduction in the generation of hazardous waste or lessens the hazardous properties of the hazardous waste generated."

**REQUIREMENTS:** The bill requires DHS to give priority to source reduction in administering hazardous waste control laws and in guaranteeing grants and loans to hazardous waste generators for equipment, projects or facilities to be used for the reduction of hazardous waste generated.

**REGULATIONS:** Permitting requirements for hazardous waste management facilities.

**RELATION TO WASTE REDUCTION:** These requirements for the start-up or expansion of both on and off-site hazardous waste management facilities are usually extremely time-consuming and difficult to complete. This fact can add to the incentive to find alternative waste management or reduction technologies such as recycling or source reduction

### LOCAL LEVEL

The Santa Clara County Tanner Advisory Committee has adopted the Hazardous Waste Management Hierarchy (see Fig. 7-2) which will be utilized to guide the development of future County hazardous waste management programs.

### SUMMARY OF IMPORTANT REQUIREMENTS

- **RCRA:** Generators required to develop programs to reduce the volume and toxicity of waste generated
- **EPA to report to Congress** on the need for statutory authority for waste reduction (in 1990)
- **Subtitle D (RCRA):** prohibits hazardous waste from being disposed of at solid waste facilities (beginning in 1989)
- **Hazardous Waste Management Act:** restricts the land disposal of certain types of hazardous wastes beginning in 1988 and all types of untreated waste in 1990
- **Used Oil Recycling Act/Management of Used Oil:** encourages the collection and recycling of used oil to the maximum extent feasible
- **AB 1809 (Tanner):** includes a program for the safe management of household hazardous wastes in its solid waste plan (1989 plan submission deadline)

In order to achieve significant hazardous waste reduction, there are several components which should be incorporated in a local waste reduction program. These components should include the following ideas:

- Better local planning and reporting by generators concerning manufacturing processes that produce waste and of the waste management practices they currently utilize;
- Public programs to promote and encourage further source reduction, recycling and treatment of hazardous wastes and more aggressive movement up this hierarchy of waste management practices;
- Educational and technical assistance about waste reduction procedures and practices;
- Special efforts to address the needs of small commercial generators and households for safe waste management and waste reduction options; and
- Continued government-industry-public partnership to reduce waste generation and to meet regulatory requirements furthering waste reduction efforts by hazardous waste generators and decreasing their reliance on land disposal.

The following policies are the primary components of the County's proposed local hazardous waste reduction program.

Policy 1:

All generators of hazardous waste in the county, including commercial, industry and public facilities, shall prepare and implement a waste reduction plan which utilizes the practices of the County's Hazardous Waste Management Hierarchy and best available technology and management techniques to achieve maximum feasible waste reduction as part of a local governmental approval process.

Policy 2:

The County shall develop an industry-public-government partnership which increases the ability of all generators to reduce and manage hazardous wastes safely and economically.

Policy 3:

The County shall encourage alternative waste management practices for small generators in accordance with the Hazardous Waste Management Hierarchy.

#### Policy 4:

The County and the cities shall coordinate the development of a program for the proper management and disposal of household hazardous waste (HHW) on a countywide basis in accordance with the Hazardous Waste Management Hierarchy and coordination with existing programs and conditions.

#### Policy 5:

The County, in coordination with cities, shall initiate a public education campaign which will inform all county residents about the potential hazards associated with household products, how to dispose of them safely, and safe substitute products and practices that can be used in place of some household hazardous products.

### **HAZARDOUS WASTE MANAGEMENT HIERARCHY**

The County has adopted a Hazardous Waste Management Hierarchy which prioritizes the use of source reduction, recycling, and on-site treatment by industries which generate hazardous waste (see Figure 7-2). The hierarchy establishes priorities for the development of hazardous waste and materials policies and programs for all generators, including large and small businesses, public facilities, and households. The County will utilize the hierarchy and waste reduction reporting requirements in combination with existing monitoring and enforcement activities to assist generators in reducing their hazardous waste generation.

The hierarchy emphasizes the importance of preventing pollution to the three major environmental media (land, air, and water) by giving primacy to reducing hazardous waste at the source of generation. It indicates that the most effective way to manage hazardous wastes is at the source of generation. Treatment and disposal are only considered for wastes that are actually generated. The hierarchy prioritizes source reduction and recycling particularly as alternatives to land disposal.

The hierarchy's approach to hazardous waste management gives first priority to reducing hazardous waste during manufacturing (and commercial and household) activities through less use of hazardous materials, better operational practices, and

FIGURE 7-2. HAZARDOUS WASTE MANAGEMENT HIERARCHY

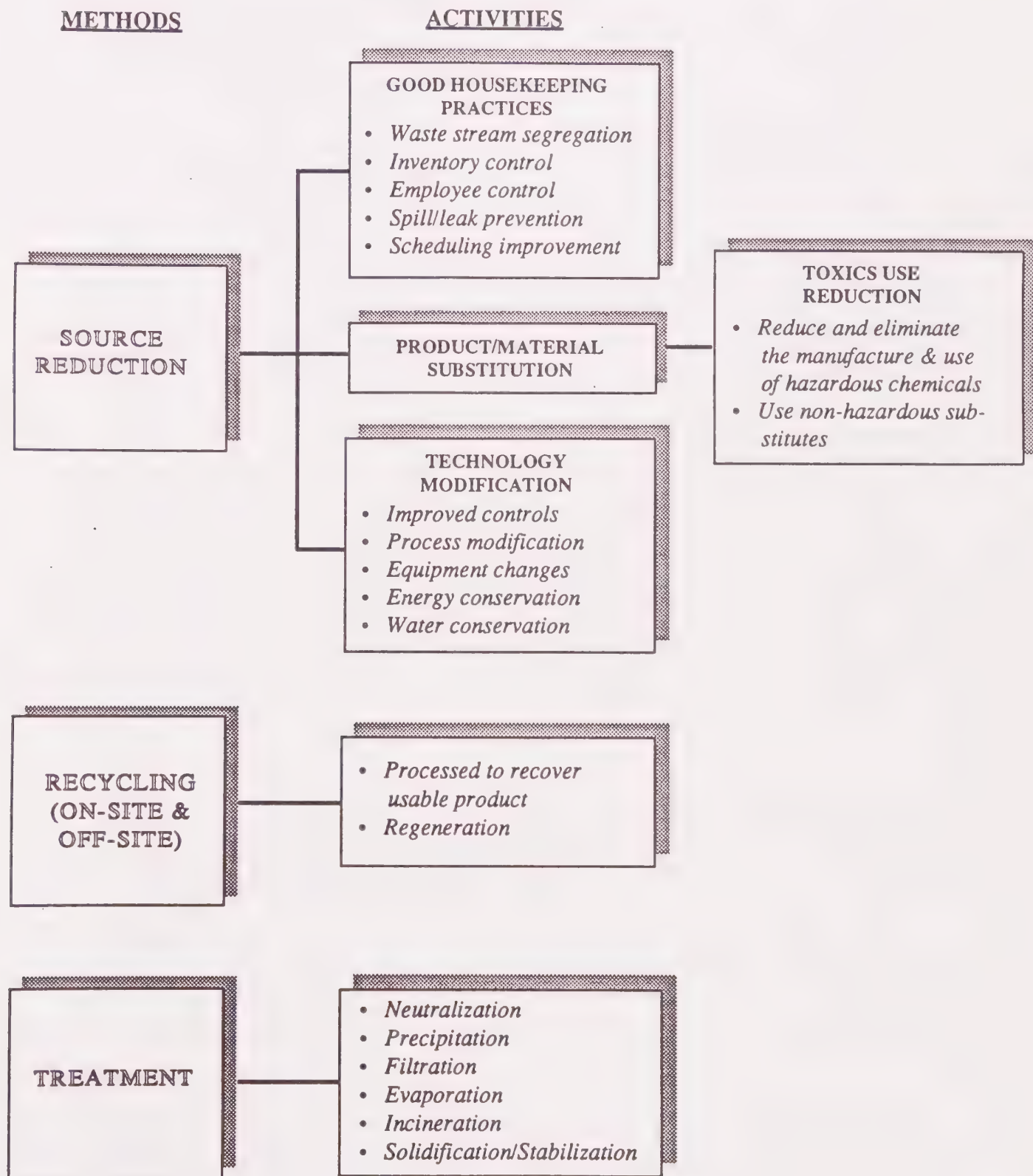


FIGURE 7-3. HIERARCHY DEFINITIONS

- **SOURCE REDUCTION**, the most preferred method in the hierarchy, refers to the avoidance or elimination of waste generation at the source, usually within a process. This term covers any technique by which the amount of hazardous substance is reduced, within a plant or facility manufacturing process. Potential source reduction methods include modifications to the manufacturing process, equipment changes, product reformulations, chemical substitutions or improvements in feedstock purity, improved maintenance and management practices, input conservation, and recycling within a process.  
**TOXICS USE REDUCTION**, a subset of Source Reduction, includes reducing or eliminating the manufacture and use of hazardous chemicals and the use of non-hazardous substitutes for raw materials or other hazardous or toxic chemicals.
- **RECYCLING and REUSE** refers to the use or reuse of a waste as an effective substitute for a commercial product, or as an ingredient or feedstock in an industrial process. It also includes the reclamation of useful constituents within a waste material or removal of contaminants from a waste to allow it to be reused. Recycling cuts down on the amount of hazardous materials that permanently leaves the production process. The recycling of hazardous wastes can be divided into three categories: on-site recycling, waste exchange, and off-site or commercial recycling.  
**WASTE EXCHANGE** is a recycling method in which the wastes of one business are used by another business. For instance, calcium hydroxide can be used as a soil conditioner in the cement industry, or as a means of neutralizing acids; metals can be recovered from plating solutions; solvents that cannot be cleaned up can be incinerated for their thermal content. Paints and precious metals waste can also be recycled by waste exchange. Not all types of waste are recyclable. Economic constraints generally determine the feasibility of recovering materials from a particular waste. Oil and solvents, for example, are economically suited for recycling. In addition, in many cases, recycling processes generate a residual which must be managed and disposed of as a hazardous waste.
- **TREATMENT** is the last option in a waste reduction program and should only be utilized if a waste stream cannot be feasibly reduced at the source or recycled. Both on-site and off-site treatment methods are used to reduce the volume and toxicity of hazardous waste. On-site treatment is preferable to off-site treatment. Methods include: physical, chemical, biological, and chemical stabilization and solidification of the hazardous waste (e.g., when mixed with slurried inorganic hazardous wastes, common cement forms a solid material). In most cases, treatment processes result in some residual which requires some type of disposal. Treatment systems should be installed on-site whenever feasible to minimize the risks of transporting hazardous waste off-site.
- Secure **DISPOSAL** of residuals from waste recycling and treatment.

The term "**WASTE REDUCTION**" means the lessening, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored or disposed. "**WASTE MINIMIZATION**" is a broader term which is used to refer to the above practices (in order of priority) which are contained in the waste management hierarchy.

process changes. The hierarchy can be found in the 1976 Federal Resource Conservation and Recovery Act (RCRA) and in the California Health and Safety Code (Section 25179.4). Both laws direct public agencies to utilize the hierarchy to promote waste management practices in order of priority. Figure 7-3 presents hierarchy definitions.

Santa Clara County generators produced 87,430 tons of hazardous waste in 1986 that was shipped off-site (within California). Much of this waste was generated using manufacturing processes amenable to source reduction, recycling, and on-site treatment, all of which reduce hazardous waste generation.

## COUNTY HAZARDOUS WASTE REDUCTION POTENTIAL

Santa Clara County generators should utilize the priorities set forth in the "Hierarchy" when establishing a hazardous waste management program. The tonnage and/or toxicity of hazardous wastes generated during the manufacturing process can be reduced considerably by reducing the use of hazardous materials. In fact, based on data from 1985 through 1987, many of the largest firms in the county have already begun to reduce waste generation through the following "waste minimization" efforts:

- "source reduction" (using hazardous materials more efficiently and by substituting less hazardous or nonhazardous materials);
- the redesign of manufacturing processes; and
- the improved management of hazardous wastes that have already been generated.

Several methods of waste reduction in the manufacturing process are referenced in state law (such as in AB 685 and in Title 22, Section 22-66796 regarding recyclable wastes) and can be inexpensively and easily implemented. Some degree of waste minimization is probably attainable by all hazardous waste generators. Examples of easily implemented actions include improving in-plant operational or

“housekeeping” practices such as changing hoses routinely before they break and spill hazardous materials or wastes.

To aid Bay Area counties in estimating local generator potential for waste minimization, the Association for Bay Area Governments (ABAG) developed two sets of estimates of potential waste reduction levels (10 percent and 40 percent) for several types of industries and waste types. Based on these estimates, Santa Clara County will apply a 10% minimum and a 40% maximum range per unit of output over the forecast period to its hazardous waste management needs assessment.

Table 5-2 in Chapter 5 shows the resulting waste stream estimates when these two estimates are applied to each of the seventeen waste categories and nine industrial sectors. Without any allowance for hazardous waste reduction, the baseline projection of county's manifested waste generation in the year 2000 is 127,510 tons. A 10 percent waste reduction across all waste streams would yield about 114,800 tons of hazardous waste in the year 2000, while a 40 percent reduction would produce about 76,500 tons of hazardous waste. If a 40 percent hazardous waste reduction was achieved in this county, approximately 50,000 tons of waste management capacity (against the baseline projection) would be saved.

In a preliminary survey, many large industrial generators in the county indicated that for certain waste streams like solvent wastes, aggressive source reduction could result in a 70 to 90 percent reduction in the use of hazardous materials/generation of hazardous wastes from particular manufacturing processes in the next 2-3 years (see Figure 7-3 for a definition of “source reduction”). Clearly, waste reduction efforts can influence the extent of the need for additional transfer, storage, and disposal facilities (TSDFs). Moderate reduction can be achieved by implementing a single waste reduction practice such as recycling or extending the use of a solvent. Achievement of aggressive waste reduction goals is dependent upon industry commitment and participation.

Basic economic incentives make moderate reduction appear probable. Aggressive waste reduction across industry groups would require a County waste reduction assistance program, especially for small hazardous waste generators. Depending upon the adoption of policies and incentives which are utilized to encourage further waste reduction, the projected volumes associated with new or continued economic growth could be reduced considerably. For example, in the highly competitive Silicon Valley market, if new businesses are more efficient in waste reduction than existing competitors, the existing companies will be at a competitive disadvantage. For some waste streams, aggressive waste reduction could ultimately generate half as much waste per unit of output as do existing generating plants in Santa Clara County.

## **LOCAL WASTE REDUCTION PROGRAMS**

### **Santa Clara County**

There is currently no formal or comprehensive county waste reduction program for large businesses, small quantity generators, or public facilities. Some of the County Environmental Health Department (Environmental Health) and city water treatment plant inspectors provide some information on waste reduction practices during their routine generator inspections. Environmental Health, for instance, has the authority to inspect the county's large and medium hazardous waste generators under a Memorandum of Understanding (MOU) with the State Department of Health Services (DHS). The MOU will also eventually provide for small quantity hazardous waste inspections by Environmental Health. In addition, the county's current waste reduction grant will provide educational materials and assistance to SQGs for a one-year period. SQGs have a greater need than many large generators do for technical assistance, alternative waste management opportunities, and education about hazardous waste management and reduction. The purpose of providing information and assistance, especially to SQGs, is to prevent incidents of

on-site soil and groundwater contamination, illegal off-site dumping, and injuries to refuse workers caused by improper hazardous waste disposal practices.

The capability to include waste reduction assessments or technical assistance in current inspection programs depends upon (1) the availability of waste reduction specialists, (2) the experience of inspectors and maturity of the inspection program, and (3) city and County coordination and commitment.

The County has worked with the cities in establishing programs for the reduction and disposal of household hazardous waste (HHW). In the past, cities sponsored or co-sponsored HHW collection days (see Appendix VII-A). Several of the city-sponsored HHW events are open to residents of the unincorporated areas of the county in the region of the city event. However, some residents (particularly in unincorporated portions of the county) did not have access to the one-day collection events. In response, a countywide HHW collection program has been developed to begin operations in the fall of 1991. The program involves operation of a mobile collection trailer that will travel throughout the county. Residents of Campbell, Cupertino, Los Altos, Milpitas, Monte Sereno, Mountain View, San Jose, Saratoga, Santa Clara, Sunnyvale, Los Altos Hills, Los Gatos, and the unincorporated portions of the county will be able to dispose of their used paint, motor oil, pesticides and other household toxics on a regular basis. Residents of Morgan Hill and Gilroy can drop off their HHW at the San Martin Transfer Station on designated days, while Palo Alto residents are offered monthly collection events (first Saturday from 9 am to 12 pm at the Palo Alto Wastewater Treatment Plant). Operation of a permanent HHW collection site is planned for the near future. In addition, the County has a public education program to inform the public on proper hazardous waste disposal (particularly regarding drains, storm sewers, and the landfill), the most common waste pathways, alternatives to waste disposal (recycling, giving it away), and non-toxic alternatives to commonly used toxic products.

In order to develop a comprehensive local waste reduction program in the county which would target small, medium, and large quantity generators as well as households, the following tasks should be met:

Task 1:

Develop incentives for industry to utilize hazardous waste reduction practices and develop waste reduction plans;

Task 2:

Continue to provide SQGs with information on available waste reduction techniques and regulatory compliance, technical assistance, capitalization, and convenient waste exchange and recycling services;

Task 3:

Provide more accessible HHW education and collection services which will reduce the amount of improperly disposed HHW; and

Task 4:

Investigate and reduce the quantity of hazardous waste produced by public facilities such as airports, transportation agencies, and general services agencies.

During the Santa Clara County CHWMP process, the Tanner Technical Advisory Committee, which consists mainly of a number of the county's largest generators, has been instrumental in developing waste reduction potential estimates as well as plan implementation requirements. There is every reason to believe that members of this group will continue to actively participate in the implementation and planning update stages of the CHWMP process including the further development of and compliance with reporting requirements. To obtain public support, the County must continue to raise public awareness of the need for and benefits of waste reduction, and provide opportunities for input to program design.

## **Other Counties**

While Santa Clara County is still in the process of developing a local hazardous waste reduction program, such programs have been implemented in other counties

in the state, including San Diego, Santa Cruz, and Ventura Counties. So far, results from the Ventura program are the most dramatic and include a reduction of 70% in hazardous wastes disposed to landfills in 1986-87 and savings to industry of \$2 million annually.

The success of the Ventura program is the result of cooperative efforts between local government, individuals from state government, and industry. The Ventura County Board of Supervisors co-funded the program and provided letters of recognition to industries who successfully reduced their waste. Industry groups provided technical and advisory assistance. Public support for the program was also emphasized through workshops and media participation. All of these elements are essential to a successful waste reduction program.

## **BARRIERS TO WASTE REDUCTION**

The previous sections discussed incentives for reducing waste, as well as statutory requirements which can be used to encourage waste reduction. This section discusses the potential barriers to waste reduction which exist internally, both at the facility and company levels. A number of research efforts have concluded that the ability of industry to implement their own waste reduction programs depends upon their ability to overcome a number of barriers. Four major types barriers identified include institutional, financial, technical, and physical barriers.

### **Barrier 1: Institutional**

One institutional barrier is a lack of commitment on the part of company decision-makers regarding waste reduction, whether it is a small business or medium or large corporation. The presence or lack of expressed support for waste reduction efforts and innovations by a company's top management has tremendous influence over a company's waste reduction potential, and often, associated waste management costs. The preparation and implementation of a waste reduction plan can generate support for reducing waste generation.

Another institutional barrier to implementing waste reduction is a business's lack of awareness of its waste management and disposal costs. Instituting a system where the costs of waste management and disposal are charged back to

the division whose processes generated the waste can add to the recognized incentives for reducing waste generation.

In addition, the utilization of some waste reduction technologies may require the generator to modify an air or sewer discharge permit. It may also require the facility operator to obtain a TSD permit. This can be a costly and lengthy process, and as such, can delay or prohibit the implementation of the proposed waste reduction practice.

#### Barrier 2: Financial

Although the implementation of waste reduction measures can result in cost savings, the start-up costs needed for facility expansion or modifications may present a significant obstacle. This is especially true for smaller companies that generate hazardous waste.

#### Barrier 3: Technical

Often, a lack of awareness of the availability or application of waste reduction practices may prevent the adoption of reduction measures. Companies are also reluctant to adopt waste reduction techniques because of concern about continued product quality and compatibility of the new process with existing operations.

#### Barrier 4: Physical

The most common physical barrier to the implementation of waste reduction efforts is limited production space in which to expand or modify manufacturing operations or processes.

## RECOMMENDATIONS FOR IMPLEMENTATION

Despite the barriers mentioned above, the county has a great deal to gain from the development and implementation of a program to enhance generator waste reduction efforts. The development and implementation of an effective local waste reduction program will require the adoption of official policy, commitment from government, participation from industry, and support from the public. The cooperation of all three groups is needed to develop a program which meets local needs in a timely manner.

Adoption of official policy can focus attention on the need for this program, as well as provide goals and direction for program development. The Tanner Advisory Committee has already adopted the Hazardous Waste Management Hierarchy as a top priority for the County. The Board of Supervisors will take the same action as part of the Tanner process. In addition, the committee has called for the development of a model ordinance which, when adopted, would provide for uniform implementation in goals and policies countywide. Other organizations and agencies such as the Santa Clara County Medical Society and the cities of Palo Alto and Gilroy have also expressed interest in adopting the Hazardous Waste Management Hierarchy to guide their own policies and programs.

Commitment and participation from industry is also critical to the success of the waste reduction program. Program development must address local needs. Therefore, industry input is needed in both the developmental and implementation stages of the program. Industry groups and trade associations can play a role by helping to provide information and targeted technical assistance to their members. The local government waste reduction staff will enlist these organizations to help establish industry commitment to the program.

Finally, public support is necessary for a successful program. First, the public must be aware of the need for such a program. Beyond the adoption of official policy on waste reduction, educational workshops which involve community groups and the public will also be used to heighten understanding of this issue. Public education on household hazardous waste can also help to make the public aware how they contribute to the household hazardous waste problem and, as such, should be involved in some component of its resolution.

### **Recommended Components of a Local Waste Reduction Program**

As discussed earlier in this chapter, there are several requirements of a successful comprehensive local waste reduction program. In order to insure the success of

such a program, this CHWMP recommends the adoption of six overall program components. While these activities are explained in depth in Chapter 11, brief descriptions follow:

### Component 1: Educational Outreach

Industry continues to need accurate information on waste reduction techniques, regulatory requirements, and the economics of implementing waste reduction measures. Lack of such information is the most frequently-cited barrier to waste reduction, especially by SQGs.

In addition, the County should take every opportunity to include the public in educational sessions about the need for, benefits, and costs of waste reduction efforts. These sessions should include presentations and information dissemination regarding industry's efforts to reduce hazardous waste, if the siting of treatment facilities is to gain credibility and support in the community.

### Component 2: Technical Assistance

The most effective means of implementing a technical assistance component would be to provide facility-specific information to both large and small generators. Educational outreach and on-site consultations have proven to be central to the success of local government waste reduction programs.

It should also be noted that a successful technical assistance program in this area is more likely to succeed if it is backed up with a strong enforcement program. While generators should be able to request and receive technical assistance about a waste management problem without fear of automatic regulatory action, assistance must be coupled with the timely enforcement of regulatory requirements and actions. The County should also create positive incentives (such as permitting assistance) for further waste reduction achievements.

### Component 3: Financial Assistance and Economic Incentives

As mentioned earlier, even though waste reduction can save money, the immediate capital needed for process modification or product reformulation is not always available or affordable. The County will investigate a number of options in the area of financial assistance, including (1) coordination of efforts to win joint industry-government grants from state and federal agencies and private foundations and (2) a government-industry partnership which will work with local financial institutions to provide access to and packaging of long-term, low-interest loans to be used for waste reduction purposes (e.g. a capitalized revolving loan fund). Most small generators are not aware of ways to handle and reduce hazardous waste generation. Therefore, financial assistance must be instituted in conjunction with an educational component for SQGs.

Local government activities may aid economic incentives for instituting waste reduction efforts. A local waste exchange, as noted earlier, could be coordinated initially by the County. In addition, intermediary companies that buy surplus chemicals (as well as chemical suppliers) might be encouraged to participate in a countywide buyback and or exchange program. The County will also look into possible tax incentives which might be available for companies that make significant progress "up the waste management hierarchy." Finally, permitting assistance provided by local government to industry for waste management projects can shorten the time necessary to obtain a permit from the State. The reduced waiting period will also save money for industry.

#### Component 4: Regulatory Measures

A number of existing federal and state regulations require the development of waste reduction plans and programs by industry. For instance, the 1984 Resource Conservation and Recovery Act (RCRA) Hazardous and Solid Waste Amendments require all generators who ship waste off-site to certify on each manifest that they have implemented "economically practicable waste reduction methods." This requirement, however, is not actively enforced. Reporting requirements which are already in existence should be incorporated as part of the County's waste reduction program. The CWHMP includes a requirement for waste reduction planning for the county's hazardous waste generators. This requirement will be coupled with the provision of model waste reduction plans to be prepared by the County based upon criteria included in SB 14 (Roberti). These provisions cannot be an effective means of reducing waste generation without active enforcement, as well as educational and technical assistance, to ensure that generators are both aware of regulatory requirements and able to identify opportunities for waste reduction in their own plants. In general, the county needs more complete local reporting of waste management and reduction plans and progress to be able to determine the needs of Santa Clara County generators.

#### Component 5: Public Recognition and Information

Public recognition of companies or trade associations that have successfully implemented waste reduction practices will provide positive publicity for the company's efforts and serve as a positive incentive for other companies who manage similar wastes. For example, letters of commendation, awards, or certificates to firms can reinforce the County's commitment to working with industry to achieve "movement up the waste management hierarchy."

#### Component 6: Data Tracking and Development

The implementation of a County waste reduction program will be facilitated by the expansion of the local environmental data management system to accommodate waste reduction data. Existing local data collection methods and reporting procedures will be modified to enable the capture of needed data on

waste reduction potential and achievement. As the waste reduction program becomes established, facility inspection forms may also need to be altered.

## CONCLUSION

The intent of AB 2948 is to hold counties responsible for all hazardous waste being generated within their boundaries, including waste from large companies, small businesses, households, and public facilities. Establishing a local waste reduction program is one of the key steps local government can take to meet this charge.

The current economic and regulatory climate offers the following major incentives to promote waste reduction efforts in the private sector: (1) dramatic increases in the cost of all forms of hazardous waste management; (2) difficulties in siting hazardous waste management facilities; (3) permitting burdens and corrective regulatory requirements; (4) financial liability of hazardous waste generators for TSDF actions; (5) major increases in the cost of commercial liability insurance with a simultaneous dropoff in its availability; and (6) public pressure on industry to reduce the production of hazardous waste.

There are, however, major barriers to implementing waste reduction practices, as explained earlier in this chapter. For instance, SQGs often do not possess the information they need to meet regulatory requirements or to adopt alternative waste management or reduction options. Plant managers for large firms may not have the corporate support necessary to encourage the identification and implementation of innovative waste reduction practices. The purposes of providing assistance to help generators overcome these obstacles include (1) preventing future incidents of on-site soil and groundwater contamination, (2) reducing the disincentives for proper disposal practices, and (3) strengthening the overall competitiveness of businesses in the county. These obstacles and concerns, coupled with numerous case studies that show the importance of waste reduction to the health of today's businesses as well as to public health and the environment,

provide the County with valid reasons to commit resources to the development and implementation of a County waste reduction program.

## CHAPTER 8

### SITING OF HAZARDOUS WASTE MANAGEMENT FACILITIES

#### INTRODUCTION

As discussed in Chapter 7, new and existing hazardous waste generators in the county will be encouraged and required to implement the methods recommended in the Hazardous Waste Management Hierarchy (source reduction, on- and off-site recycling, and on-site treatment – in order of priority) to the maximum extent feasible in their use, handling, and disposal of hazardous materials and wastes. Reducing the sources of hazardous waste is the preferred method for managing waste generated in Santa Clara County. However, use of the hierarchy will not necessarily preclude the need for the siting of off-site hazardous waste management facilities due to the county's large and varied waste streams. Santa Clara County will remain a continuing source of large volumes of hazardous waste for the foreseeable future – from large and small quantity generators, contaminated sites, and households. Identifying environmentally suitable locations in the county for future off-site hazardous waste management facilities thus remains an important and necessary activity.

Chapter 8 is a statement of the policies and criteria for siting hazardous waste management facilities in Santa Clara County through the year 2000. The main thrust of AB 2948, the "Tanner Bill" (Government Code Sections 65963.1 and 66780.8 and Chapter 6.5 of the Division of the Health and Safety Code), is to provide for the siting of off-site hazardous waste management facilities in California. (Provisions for the siting or expansion of on-site facilities are not covered under AB 2948.) This chapter provides criteria for identifying general areas in the county where facilities may be sited pending compliance with constraints specific to a particular facility.

Candidate areas were selected by overlaying siting criteria factors, for which maps were available, over the industrial zone map and identifying the resulting areas which appeared to meet the siting criteria for the construction of an off-site hazardous waste management facility. More stringent criteria were applied to the siting of residuals repositories than for other facilities since residuals repositories pose a potentially greater risk to public and environmental health.

The siting criteria developed by the County to meet the statutory requirements of AB 2948 fall under the following objectives: (1) protection of the residents of Santa Clara County; (2) assurance of the structural stability of the facility; (3) protection of water quality and resources; (4) protection of air quality; (5) protection of environmentally sensitive areas; and (6) protection of social and economic goals.

Siting criteria serve an important function in the planning process and in evaluating specific facility proposals. While the siting criteria satisfy the need for an emphasis on public and environmental safety, the County's siting policies ensure that countywide facility siting needs and objectives are met. These siting criteria and policies will be used to determine the appropriate facility design and performance standards required of a proposed facility, in addition to determining the acceptability of the selected site.

The siting criteria are intended to apply to countywide siting decisions, including siting decisions in individual cities. They are to be used whenever a land use decision is required to site and construct a new or expand an existing off-site hazardous waste management facility. The criteria are designed to identify the most appropriate locations in regards to public and environmental safety for needed hazardous waste management facilities. These criteria will help facility developers identify appropriate facility location and understand the major issues of community concern in any particular area.

Santa Clara County's primary goal in developing this CHWMP is to protect the health, safety, and economic well-being of both its citizens and the environment. The County recognizes its responsibility to address the specific hazardous waste management needs of businesses and households by: (1) encouraging local generators to practice source reduction and on-site treatment and (2) establishing a clear process for the siting of appropriate new hazardous waste facilities.

The CHWMP should be reviewed regularly and siting criteria revised when appropriate. All resulting changes to the CHWMP or siting criteria must be approved by a majority of the cities with a majority of the population within the incorporated portion of the county in the same manner as required for its initial adoption. A formal update should be conducted every three years to correspond with the triennial update of the State Plan. Any amendments shall be subject to the same public participation processes used to initially evaluate the CHWMP.

## **FACILITY SITING POLICIES**

In the siting of future hazardous waste management facilities, Santa Clara County recognizes that the storage, treatment, incineration, and disposal of hazardous waste is of extreme concern to its residents. The following policies address the land use implications for siting these facilities in the county. These policies, in addition to the goals, policies, and objectives outlined in Chapter 2, are supported by the siting criteria described in this Chapter.

### **Policy 1:**

All proposals to site a hazardous waste management facility shall assure compatibility with neighboring land uses and be consistent with the appropriate permitting jurisdiction's General Plan, zoning, and the CHWMP.

### **Policy 2:**

Areas designated for industrial uses by the applicable General Plan may be appropriate for hazardous waste management facilities if, during the development review process, it is determined that such a use would be compatible with existing and planned land uses in the vicinity of the site.

Urbanized areas designated for industrial uses are not appropriate for siting residuals repositories.

Policy 3:

As determined by the permitting jurisdiction, all proposals for new and expanded hazardous waste management facilities must provide adequate mitigation for identified environmental impacts.

Policy 4:

A risk assessment shall be conducted for inclusion in an Environmental Impact Report (EIR) if the local jurisdiction determines that a risk assessment is required based on local staff's analysis of the completed risk assessment checklist in consultation with the Local Assessment Committee (LAC).

Policy 5:

All proposals for hazardous waste facilities should be consistent with plans and policies of regional regulatory agencies (i.e. the Air Quality Management District and the Regional Water Quality Control Board) that protect air and water quality.

Policy 6:

The representation on the Local Assessment Committee will include a representative from the community adjoining the jurisdiction in which the facility is proposed whenever the adjoining community may be adversely affected by the proposal in question.

## **THE FACILITY SITING PROCESS**

The siting process outlined in this Chapter is a guide for local land use decisions. It defines the conditions under which it is appropriate to permit a new or expanded off-site hazardous waste management facility.

The "local land use authority" referred to in this Chapter is the city council if the facility is proposed to be located within a city or the Board of Supervisors if the facility is to be located in an unincorporated area of Santa Clara County. The off-site hazardous waste management facilities referred to in this report are:

- **Transfer and Storage Facilities**
- **Treatment Facilities, including but not limited to:**
  - Neutralization
  - Precipitation
  - Filtration
  - Evaporation
  - Solidification and Stabilization
  - Incineration
- **Recycling and Resource Recovery**
- **Residuals Repositories**

Appendix VIII-A presents a detailed description of the transfer and storage, aqueous treatment, recycling, stabilization and solidification, incineration, and residuals repository facilities.

The initial design and development of hazardous waste facilities will be accomplished by private developers, who own and operate the facilities. Government's role will focus on overall planning for these facilities, as well as on the evaluation and the issuance of land use permits for proposed facilities. AB 2948 requires certain development review procedures to be used by the local land use authority for proposed hazardous waste facilities. The required procedures (negotiations between community and developer, consistency with jurisdictional plans, environmental assessment, and risk assessment) are described below.

### **Negotiations Between Community and Developer**

Section 25199 of the Health and Safety Code specifies the local approval process for the siting of a hazardous waste management facility. One purpose of the permit process is to provide an opportunity for negotiations between the local community and the facility developer. At least 90 days before applying for a land use permit, the developer must notify the California State Office of Permit Assistance (OPA) and the local land use authority of its intention to apply for a permit (Notice of Intent). This

step triggers a public hearing conducted by OPA in the community where the facility is proposed to inform the public about the project's nature, function and scope. Once the applicant files a Notice of Intent (NOI) with OPA, OPA notifies the local land use jurisdiction. The jurisdiction then has 90 days to appoint a Local Assessment Committee (LAC) consisting of seven-members (three representatives from the community-at-large, two representatives of environmental or public interest groups and two representatives of affected businesses and industries) to negotiate with the developer on the conditions for project approval.

The local land use jurisdiction sends the applicant Initial Study materials and a risk assessment checklist. At the time of application for a local Land Use Permit, the applicant must submit the completed initial study and risk assessment checklist for review by the local land use agency in consultation with the LAC. The local staff will then determine whether or not the applicant needs to prepare a risk assessment and/or an EIR. If, based on analysis of the completed risk assessment checklist, local staff determine that a risk assessment must be completed, the risk assessment shall be consistent with the risk assessment requirements of the appropriate permitting agencies (e.g., BAAQMD and DHS).

Once the developer has filed a complete application for a land use permit, OPA convenes another meeting in the affected community. At this meeting, the State and local permitting agencies, the developer, the LAC and the public identify the issues of concern to the agencies and the public. Subsequently, the developer and the LAC negotiate the terms of project approval acceptable to both the community and the facility developer. If the LAC and developer cannot agree, a mediator may be provided by OPA. The LAC advises the city or county of the conditions for project approval agreed upon by the LAC and the developer. While these conditions are not binding on the local decision making process, this advice should be seriously considered by the local land use authority in its decision on the land use application. Appendix VIII-B provides a complete step-by-step discussion of the local approval process for siting hazardous waste management facilities.

## **Consistency with Jurisdictional Plans**

In order for the local land use authority to approve the land use permit, it must find that the project is consistent with the permitting jurisdictions' General Plan and zoning in effect at the time of application and with the CHWMP. The siting map developed for the Plan delineates general areas that appear to meet the siting criteria and appear to be consistent with the General Plan. Compliance with the CHWMP siting criteria is a necessary condition for project approval. Should an applicant desire to site a facility in an area not currently identified on the siting map as an area that appears to meet the siting criteria for hazardous waste management facilities, the applicant may seek a General Plan amendment through the local jurisdiction. Upon revision to the local General Plan, the subject change must be incorporated into the siting map of the CHWMP. The resulting change to the CHWMP must be approved by a majority of the cities with a majority of the population within the incorporated portion of the county, by the Board of Supervisors, and finally by DHS.

## **Environmental Impact Report**

The proponent of a hazardous waste management facility will be required to comply with the California Environmental Quality Act (CEQA) in order to fully inform the public and government decision-makers regarding the environmental consequences of the project, alternatives to the project, and mitigation measures that may be required for project approval (note: in general, mitigation measures are not permitted for residuals repositories due to the potential risks associated with these facilities). CEQA compliance is a mandatory condition for project approval. After an applicant files a NOI with OPA, they must begin preparing an initial study, which must be submitted to the local land use jurisdiction upon filing for a local Land Use Permit. The local jurisdiction will then determine whether an Environmental Impact Report (EIR) is required.

## **Risk Assessment**

A multi-media risk assessment (air, surface water, groundwater, soil, sediment, and biota) shall be conducted for inclusion in an EIR if the local jurisdiction determines that a risk assessment is required based on local staff's analysis of the completed risk assessment checklist in consultation with the LAC. The applicant begins completing the checklist after filing an NOI with OPA. It must be completed when the applicant files for a local Land Use Permit. The purpose of the checklist is to determine a new or expanded facility's potential for release of hazardous chemicals to the air, surface water, groundwater, soil, sediment, and biota (including estimates of the types and quantities of chemicals routinely used and potentially one-time accidental spills); the probability that a release would impact human, animal, and plant populations (including proximity to vulnerable populations, climatologic and hydrogeologic factors that would influence transport); and the risks associated with such an impact. If a risk assessment is deemed necessary, it should consider the potential for accidental (i.e., sudden) and cumulative health and environmental impacts resulting from the proposed facility.

## **SITING MAP AND CRITERIA**

Table 8-1, the "Hazardous Waste Facility Siting Criteria" table, identifies the siting criteria for residuals repositories and other hazardous waste management facilities (storage, treatment, and incineration facilities). As mentioned earlier, the siting criteria are grouped into six objectives as follows:

### **(1) Protection of Residents of Santa Clara County**

- Protection of Proximate and Immobile Populations
- Protection of Public Facilities
- Capability of Emergency Services
- Proximity to Major Transportation Routes

## **(2) Assurance of the Structural Stability of the Facility**

- Protection from Suspected Faults
- Protection from Active Faults
- Protection from Dam or Levee Failure Inundation
- Protection from Floodplain Areas
- Protection from Unstable Slopes
- Protection from Unstable Soils

## **(3) Protection of Water Quality and Resources**

- Protection of Watershed Areas
- Protection of Major Groundwater Recharge Zones
- Proximity to Wells and Well Fields
- Protection from Permeability of Strata and Soils
- Protection of Surface and Groundwater

## **(4) Protection of Air Quality**

- Protection of Air Quality in Non-Attainment Areas
- Protection of Air Quality in Prevention of Significant Deterioration (PSD) Areas

## **(5) Protection of Environmentally Sensitive Areas**

- Protection from Airport Safety Zones
- Protection of Recreational, Cultural, and Aesthetic Areas
- Protection of Prime Agricultural Lands
- Protection of Mineral Resource Areas
- Protection of Wetlands
- Protection of Critical Habitats

## **(6) Protection of Social and Economic Goals**

- Consistency with the Goals and Policies of the County Hazardous Waste Management Plan (CHWMP)
- Consistency with the Applicable General Plan

In addition to meeting the above criteria, additional conditions may be imposed on a facility proponent based on the results of a risk assessment or an environmental impact report (EIR) regarding the facility design and physical and chemical characteristics of the specific types of wastes that will be handled. The facility proponent should also check with the appropriate local and regional agencies for additional agency requirements or mitigation measures that should be incorporated into the facility's design. Some of these local and regional agencies include the local

**Table 8-1: Hazardous Waste Facility Siting Criteria**

<b><u>Siting Factor</u></b>	<b><u>Siting Criteria</u></b>	
	<b>Residuals Repositories</b>	<b>Storage, Treatment, and Incineration Facilities</b>
<b><u>Protection of the Residents of Santa Clara County</u></b>		
Protection of Proximate and Immobile Populations	A minimum buffer zone of 2,000 feet should be provided between the portion of a residuals repository where hazardous waste will be stored, treated, or disposed and an existing or planned residence or immobile population. Based on the risk assessment and analysis of environmental impacts, a buffer zone of greater or less than 2,000 feet may be required to protect the present and future public health, safety, and welfare.	A minimum buffer zone of 2,000 feet should be provided between the portion of a storage, treatment, or incineration facility where hazardous waste will be stored, treated, or disposed and an existing or planned residence or immobile population. Based on the risk assessment and analysis of environmental impacts, a buffer zone of greater or less than 2,000 feet may be required to protect the present and future public health, safety, and welfare.
Protection of Public Facilities	A minimum buffer zone of 2,000 feet should be provided between the portion of a residuals repository where hazardous waste will be stored, treated, or disposed and an existing or planned public facility. Based on the risk assessment and analysis of environmental impacts, a buffer zone of greater or less than 2,000 feet may be required to protect the present and future public health, safety, and welfare.	A minimum buffer zone of 2,000 feet should be provided between the portion of a storage, treatment, or incineration facility where hazardous waste will be stored, treated, or disposed and an existing or planned public facility. Based on the risk assessment and analysis of environmental impacts, a buffer zone of greater or less than 2,000 feet may be required to protect the present and future public health, safety, and welfare.
Capability of Emergency Services	Siting of residuals repositories will require an analysis of local emergency response capability — including fire, police, medical, and hazardous materials incident response personnel — to ensure adequate protection in the event of an accident at the proposed facility. It may be necessary for the facility developer to supplement these capabilities by maintaining additional emergency response equipment and/or personnel onsite, by financially upgrading the local capabilities to provide these needed services, and/or by providing additional facility design features to limit the impact of potential accidents at the facility.	Siting of storage, treatment, and incineration facilities will require an analysis of local emergency response capability — including fire, police, medical, and hazardous materials incident response personnel — to ensure adequate protection in the event of an accident at the proposed facility. It may be necessary for the facility developer to supplement these capabilities by maintaining additional emergency response equipment and/or personnel onsite, by financially upgrading the local capabilities to provide these needed services, and/or by providing additional facility design features to limit the impact of potential accidents at the facility.

**Table 8-1: Hazardous Waste Facility Siting Criteria  
(continued)**

<u>Siting Factor</u>	<u>Residuals Repositories</u>	<u>Siting Criteria</u>
<b><u>Protection of the Residents of Santa Clara County (continued)</u></b>		
Proximity to Major Transportation Routes	To the maximum extent possible, residuals repositories shall be located in close proximity to major paved roads designed and constructed to accommodate heavy vehicles, with good access to divided highways or freeways. All designated routes should preclude the transport of hazardous waste on residential streets and in areas housing immobile populations.	To the maximum extent possible, storage, treatment, and incineration facilities shall be located in close proximity to major paved roads designed and constructed to accommodate heavy vehicles, with good access to divided highways or freeways. All designated routes should preclude the transport of hazardous waste on residential streets and in areas housing immobile populations.
<b><u>Assurance of the Structural Stability of the Facility</u></b>		
Protection from Suspected Faults	Residuals repositories sited within 3,000 feet of a known or suspected fault, as established by the Alquist-Priolo maps of the State of California or identified in the most recently available local maps or information, shall conduct a subsurface exploration to determine that there are no active faults within 200 feet of the portions of the facility where hazardous waste will be stored, treated, or disposed.	Storage, treatment, and incineration facilities sited within 3,000 feet of a known or suspected fault, as established by the Alquist-Priolo maps of the State of California or identified in the most recently available local maps or information, shall conduct a subsurface exploration to determine that there are no active faults within 200 feet of the portions of the facility where hazardous waste will be stored, treated, or disposed.
Protection from Active Faults	The portions of a residuals repository where hazardous waste will be stored, treated, or disposed shall not be located within 200 feet of an active (Holocene Period) earthquake fault, as established by the Alquist-Priolo maps of the State of California or identified in the most recently available local maps or information.	The portions of a storage, treatment, or incineration facility where hazardous waste will be stored, treated, or disposed shall not be located within 200 feet of an active (Holocene Period) earthquake fault, as established by the Alquist-Priolo maps of the State of California or identified in the most recently available local maps or information.
Protection From Dam or Levee Failure Inundation	Residuals repositories shall not be located in areas below a dam or levee structure that would be inundated by the flow of water created if the dam or levee structure were to fail.	Storage, treatment, and incineration facilities should not be located in areas below a dam or levee structure that would be inundated by the flow of water if the dam or levee structure were to fail. Facilities locating in such areas shall be designed, constructed, operated, and maintained to preclude failure due to such an event.

Table 8-1: Hazardous Waste Facility Siting Criteria

(continued)

Siting FactorSiting Criteria

## Residuals Repositories

## Storage, Treatment, and Incineration Facilities

Assurance of the Structural Stability of the Facility (continued)

## Protection From Floodplain Areas

Residuals repositories shall not be located in areas subject to inundation by floods having a 100-year return period or by flash flooding or major surges from storms, river flooding or rainfall (as identified on Federal Flood Insurance Rate Maps).

Storage, treatment, and incineration facilities should not be located in areas subject to inundation by floods having a 100-year return period or by flash flooding or major surges from storms, river flooding or rainfall (as identified on Federal Flood Insurance Rate Maps). Facilities locating in such areas shall be designed, constructed, operated, and maintained to preclude failure due to such an event.

## Protection From Unstable Slopes

Residuals repositories should not be located in areas where slope exceeds 15 percent unless site-specific factors mitigate the impact of the site's slope. Facilities locating in such areas shall require appropriate land use designations.

Storage, treatment, and incineration facilities should not be located in areas where slope exceeds 15 percent unless site-specific factors mitigate the impact of the site's slope. Facilities locating in such areas shall require appropriate land use designations.

## Protection From Unstable Soils

Residuals repositories shall not be located in areas of potential rapid geologic change (such as landslide, soil creep, earth flow, other mass movement of earth material, subsidence or liquefaction).

Storage, treatment, and incineration facilities should not be located in areas of potential rapid geologic change (such as landslide, soil creep, earth flow, other mass movement of earth material, subsidence or liquefaction) unless the applicant demonstrates and the local jurisdiction makes a finding that an overriding public need is served by allowing the facility to be located on the proposed site. Facilities locating in such areas shall be designed, constructed, operated and maintained to preclude failure as a result of rapid geologic change.

Protection of Water Quality and Resources

All applicants are required to obtain written comments from the Santa Clara Valley Water District (SCVWD) regarding the potential for a proposed facility to adversely impact water quality or resources. Based on the SCVWD letter and other information obtained during the land use decision-making process, the proposed facility may be disallowed, further hydrogeological investigation may be required of the applicant, or, if the facility is allowed, appropriate environmental protection measures may be required.

**Table 8-1: Hazardous Waste Facility Siting Criteria  
(continued)**

<u>Siting Factor</u>	<u>Siting Criteria</u>
Residuals Repositories	Storage, Treatment, and Incineration Facilities
<b><u>Protection of Water Quality and Resources (continued)</u></b>	
Protection of Watershed Areas	<p>Residuals repositories shall not be located in watershed areas tributary to any reservoirs used for drinking purposes or percolation as well as those drainage basins supplying water to major recharge areas.</p> <p>Storage, treatment, and incineration facilities should not be located in watershed areas tributary to any reservoirs as well as those drainage basins supplying water to major recharge areas. Facilities locating in such areas shall have appropriate engineered containment features, inspection measures, and other environmental protection controls necessary to minimize any risks to watershed areas.</p>
Protection of Major Groundwater Recharge Zones	<p>Residuals repositories shall not be located in areas known to be, or suspected of, supplying principal recharge to a major aquifer.</p> <p>Storage, treatment, and incineration facilities should not be located in areas known to be, or suspected of, supplying principal recharge to a major aquifer. Facilities locating in such areas shall have appropriate engineered containment features, inspection measures and other environmental protection controls necessary to minimize any risks to recharge areas.</p>
Proximity to Wells and Well Fields	<p>Residuals repositories shall not be located within the cone of depression created by pumping a well or well field (included are drinking water, irrigation, and remediation and monitoring wells) for 90 days.</p> <p>Storage, treatment, and incineration facilities should not be located within the cone of depression created by pumping a well or well field (included are drinking water, irrigation, and remediation and monitoring wells) for 90 days, unless an effective hydrogeological barrier to vertical flow exists.</p>
Protection from Permeability of Strata and Soils	<p>Residuals repositories shall not be located in areas with a natural underlying stratum with permeability greater than <math>1 \times 10^{-7}</math> cm/sec. CCR, Title 23, Section 2510 (b) and (c) allows the State Water Resources Control Board to consider alternative approaches to the <math>10^{-7}</math> cm/sec permeability requirement for residuals repositories.</p> <p>Storage, treatment, and incineration facilities should not be located on highly permeable soils or sediment. Facilities locating in such areas shall have appropriate engineered containment features, inspection measures, and other environmental protection controls provided in accordance with the requirements of the State Water Resources Control Board.</p>

**Table 8-1: Hazardous Waste Facility Siting Criteria  
(continued)**

<u>Siting Factor</u>	<u>Residuals Repositories</u>	<u>Siting Criteria</u> <u>Storage, Treatment, and Incineration Facilities</u>
<b><u>Protection of Water Quality and Resources (continued)</u></b>		
Protection of Surface and Groundwater	Residuals repositories shall not be located in areas posing a threat of contamination to useable surface water supplies or groundwater.	Storage, treatment, and incineration facilities should not be located in areas posing a threat of contamination to useable surface water supplies or groundwater. Facilities locating in such areas shall have appropriate engineered containment features, inspection measures, and other environmental protection controls necessary to minimize any risks to surface or groundwater.
<b><u>Protection of Air Quality</u></b>		
Protection of Air Quality in Non-Attainment Areas	Residuals repositories should not be precluded from locating in non-attainment areas unless the risk assessment shows that emissions will significantly contribute to non-attainment of standards, that such emissions cannot be mitigated, and that the emissions from such facilities are significantly greater than those associated with the transport of hazardous waste out of the area.	Storage, treatment, and incineration facilities should not be precluded from locating in non-attainment areas unless the risk assessment shows that emissions will significantly contribute to non-attainment of standards, that such emissions cannot be mitigated, and that the emissions from such facilities are significantly greater than those associated with the transport of hazardous waste out of the area.
Protection of Air Quality in Prevention of Significant Deterioration (PSD) Areas	Residuals repositories shall demonstrate that air emissions can be adequately mitigated in order to be established in PSD areas.	Storage, treatment, and incineration facilities shall demonstrate that air emissions can be adequately mitigated in order to be established in PSD areas.
<b><u>Protection of Environmentally Sensitive Areas</u></b>		
Protection from Airport Safety Zones	Residuals repositories shall not be located within an area designated by the United States Department of Defense or the Santa Clara County Airport Land Use Commission as having the greatest potential for aircraft accidents, generally defined as the area immediately surrounding a public or military airport, including the immediate approach and take-off paths.	Storage, treatment, and incineration facilities shall not be located within an area designated by the United States Department of Defense or the Santa Clara County Airport Land Use Commission as having the greatest potential for aircraft accidents, generally defined as the area immediately surrounding a public or military airport, including the immediate approach and take-off paths.

**Table 8-1: Hazardous Waste Facility Siting Criteria  
(continued)**

<u><b>Siting Factor</b></u>	<u><b>Siting Criteria</b></u>	
	<b>Residuals Repositories</b>	<b>Storage, Treatment, and Incineration Facilities</b>
<b><u>Protection of Environmentally Sensitive Areas (continued)</u></b>		
<b>Protection of Recreational, Cultural, and Aesthetic Areas</b>	Residuals repositories shall not be located in areas having particular cultural, aesthetic, historical, or archaeological significance as identified in the applicable General Plan or in any Regional or State Plan.	Low-volume transfer and storage facilities may be allowed in areas having particular cultural, aesthetic, historical, or archaeological significance or within other designated open space identified in the applicable General Plan or in any Regional or State Plan, if necessary, to handle hazardous waste generated by visitors, workers, or residents, thereof. Treatment and incineration facilities shall not be located within these areas.
<b>Protection of Prime Agricultural Lands</b>	Residuals repositories should not be located on prime agricultural lands, specifically areas designated by the Soil Conservation Service as Class 1 or Class 2 soils or designated as prime agricultural land in the applicable General Plan or in any Regional or State Plan. Facilities locating on such areas shall be allowed only if the local jurisdiction makes a finding that an overriding public need is served by allowing the facility to be located on the proposed site.	Storage, treatment, and incineration facilities should not be located on prime agricultural lands, specifically areas designated by the Soil Conservation Service as Class 1 or Class 2 soils or designated as prime agricultural land in the applicable General Plan or in any Regional or State Plan. Facilities locating on such areas shall be allowed only if the local jurisdiction makes a finding that an overriding public need is served by allowing the facility to be located on the proposed site.
<b>Protection of Mineral Resource Areas</b>	Residuals repositories shall not be sited so as to preclude extraction of mineral resource deposits that may be suitable for commercial development or hold outstanding scientific significance. Facilities shall be carefully planned so as not to prevent or restrict the preservation or use of mineral deposits in areas identified under the California Surface Mining and Reclamation Act of 1975 with classifications of MRZ-2, MRZ-3, or SZ.	Storage, treatment, and incineration facilities shall not be sited so as to preclude extraction of mineral resource deposits that may be suitable for commercial development or hold outstanding scientific significance. Facilities shall be carefully planned so as not to prevent or restrict the preservation or use of mineral deposits in areas identified under the California Surface Mining and Reclamation Act of 1975 with classifications of MRZ-2, MRZ-3, or SZ.

**Table 8-1: Hazardous Waste Facility Siting Criteria  
(continued)**

<u>Siting Factor</u>	<u>Siting Criteria</u>
Residuals Repositories	Storage, Treatment, and Incineration Facilities
<b><u>Protection of Environmentally Sensitive Areas (continued)</u></b>	
Protection of Wetlands	<p>Residuals repositories shall not be located in wetland areas as defined by the U.S. Fish and Wildlife Service.</p> <p>Storage, treatment, and incineration facilities shall not be located in wetland areas as defined by the U.S. Fish and Wildlife Service.</p>
Protection of Critical Habitats	<p>Residuals repositories shall not be located within critical habitats of endangered species, as defined or designated in the applicable General Plan or in any Regional or State Plan.</p> <p>Storage, treatment, and incineration facilities shall not be located within critical habitats of endangered species, as defined or designated in the applicable General Plan or in any Regional or State Plan.</p>
<b><u>Protection of Social and Economic Goals</u></b>	
Consistency with the Goals and Policies of the County Hazardous Waste Management Plan (CHWMP)	<p>Residuals repositories shall be consistent with the Goals and Policies of this CHWMP, specifically, designed and sized primarily to meet the needs of hazardous waste generators located in Santa Clara County, or to meet the County's broader commitments under any interjurisdictional agreements.</p> <p>Storage, treatment, and incineration facilities shall be consistent with the Goals and Policies of this CHWMP, specifically, designed and sized to meet the needs of hazardous waste generators located in Santa Clara County, or to meet the County's broader commitments under any interjurisdictional agreements.</p>
Consistency with the Applicable General Plan	<p>Residuals repositories shall be located only in areas which meet all the siting criteria and are consistent with the County General Plan and, if the facility is proposed to be located in any of the cities, the General Plan of that city. These facilities shall not be located in urban areas. An applicant may seek a General Plan amendment for a site that appears to meet all other siting criteria.</p> <p>Storage, treatment, and incineration facilities shall be located only in areas which meet all the siting criteria and are consistent with the County General Plan and, if the facility is proposed to be located in any of the cities, the General Plan of that city. These facilities shall be located in areas consistent with existing and proposed industrial areas as designated in the applicable General Plan. An applicant may seek a General Plan amendment for a site that appears to meet all other siting criteria.</p>

fire department/Hazmat program, the County or city planning departments, the Santa Clara Valley Water District (SCVWD), the Bay Area Air Quality Management Board (BAAQMD), and the Regional Water Quality Control Board (RWQCB).

In general, the siting criteria for residuals repositories are more stringent than those for storage, treatment, and incineration facilities. Residuals repositories are prohibited from incorporating engineering alternatives to mitigate a proposed site's deficiencies in meeting the criteria.

AB 2948 requires that counties which include siting criteria in their plans must also identify general areas which have not been eliminated after application of the siting criteria. These candidate areas were selected by overlaying siting criteria factors for which maps were available over the industrial zoning map, and identifying the resulting areas which appear to meet appropriate criteria for the construction of an off-site hazardous waste management facility. Figures 8-1 through 8-4 (dam and levee failure inundation areas; earthquake faults; areas of liquefaction; and areas of 15 percent or greater slope) are some of the overlay maps used to develop the siting map.

Before siting a facility in one of these candidate areas, however, further study would be required to determine whether that specific site would be an appropriate location for the proposed type and size of facility.

The siting map identifies general areas which appear to be consistent with the CHWMP's goals and policies, but does not identify specific facility site locations. General areas for residuals repositories were not identified on the facility siting map due to the absence of areas having a soil permeability of less than  $10^{-7}$  centimeters per second (cm/sec). However, this does not preclude the possibility that such an area may exist within the county.

The siting map is provided for informational purposes only. It is subject to revision as new information becomes available. The map does not vest any rights.

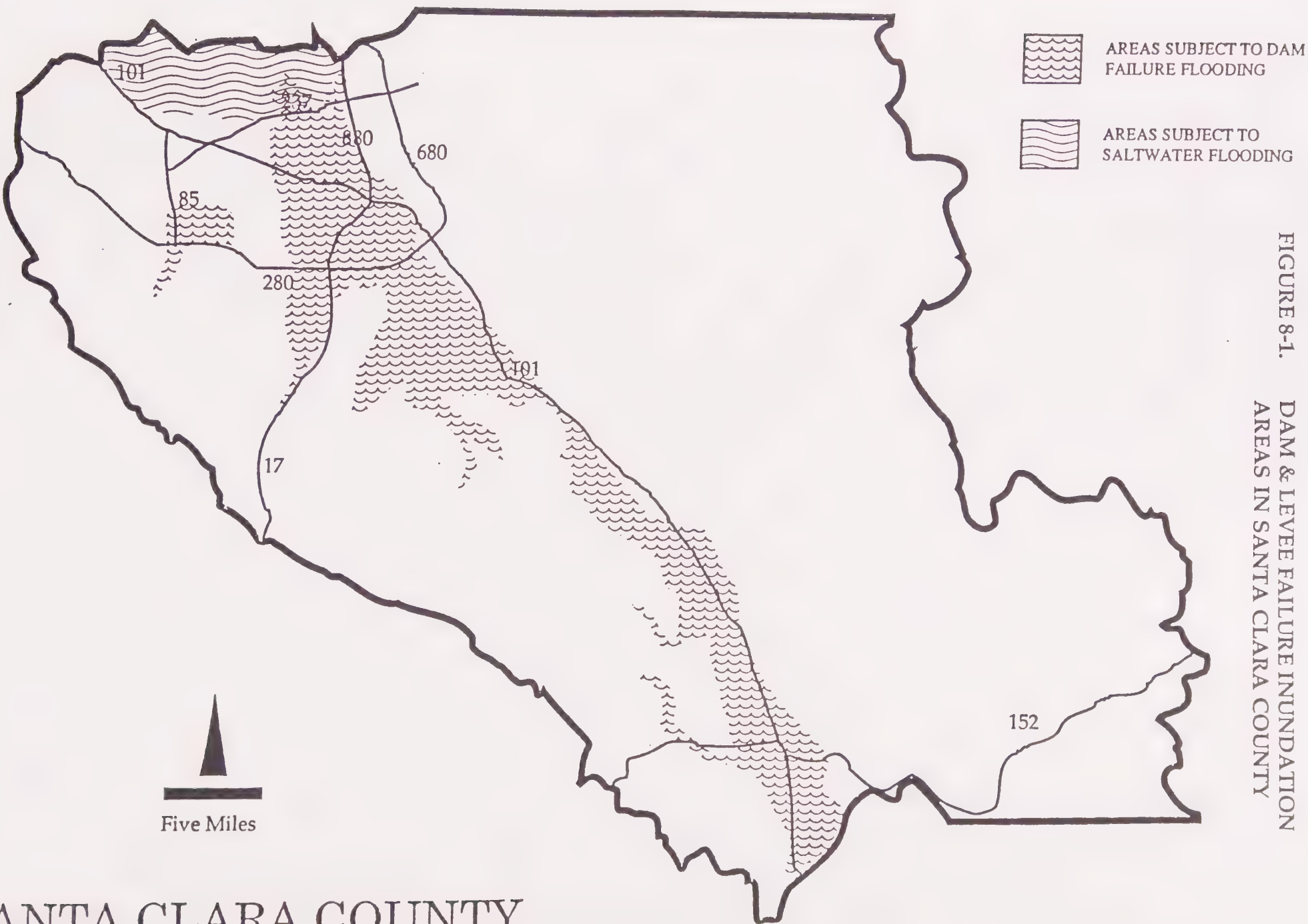
Upon DHS approval of the CHWMP, the County shall either: (1) incorporate the plan, by reference, into the County's General Plan; or (2) enact an ordinance which requires that all applicable zoning, subdivision, conditional use permit, and variance decisions are consistent with the CHWMP. For counties which choose to enact an ordinance requiring consistency of land use decisions with the CHWMP, the CHWMP (and therefore the siting map) does not need to be adopted as part of, nor be subject to, the General Plan amendment process. Within 180 days of DHS approval of the CHWMP, each city shall take one of the following actions:

- (1) Adopt a city hazardous waste management plan containing all of the elements containing all of the elements required by subdivision (d) of Section 25135.1 of the California Health and Safety Code which shall be consistent with the approved CHWMP;
- (2) Incorporate the applicable portions of the approved CHWMP, by reference, into the City's General Plan; or
- (3) Enact an ordinance which requires that all applicable zoning, subdivision, conditional use permit, and variance decisions are consistent with the portions of the approved CHWMP which identify general areas or siting criteria for hazardous waste facilities.

It is recognized that changes to either the General Plan or the CHWMP may affect the other document. Since General Plan amendments do not occur frequently, cities may choose the first or third alternative listed above to provide greater flexibility in keeping their local hazardous waste management planning process current. Under these two alternatives, the CHWMP (and therefore the siting map) does not need to be adopted as part of, nor be subject to, the General Plan amendment process.

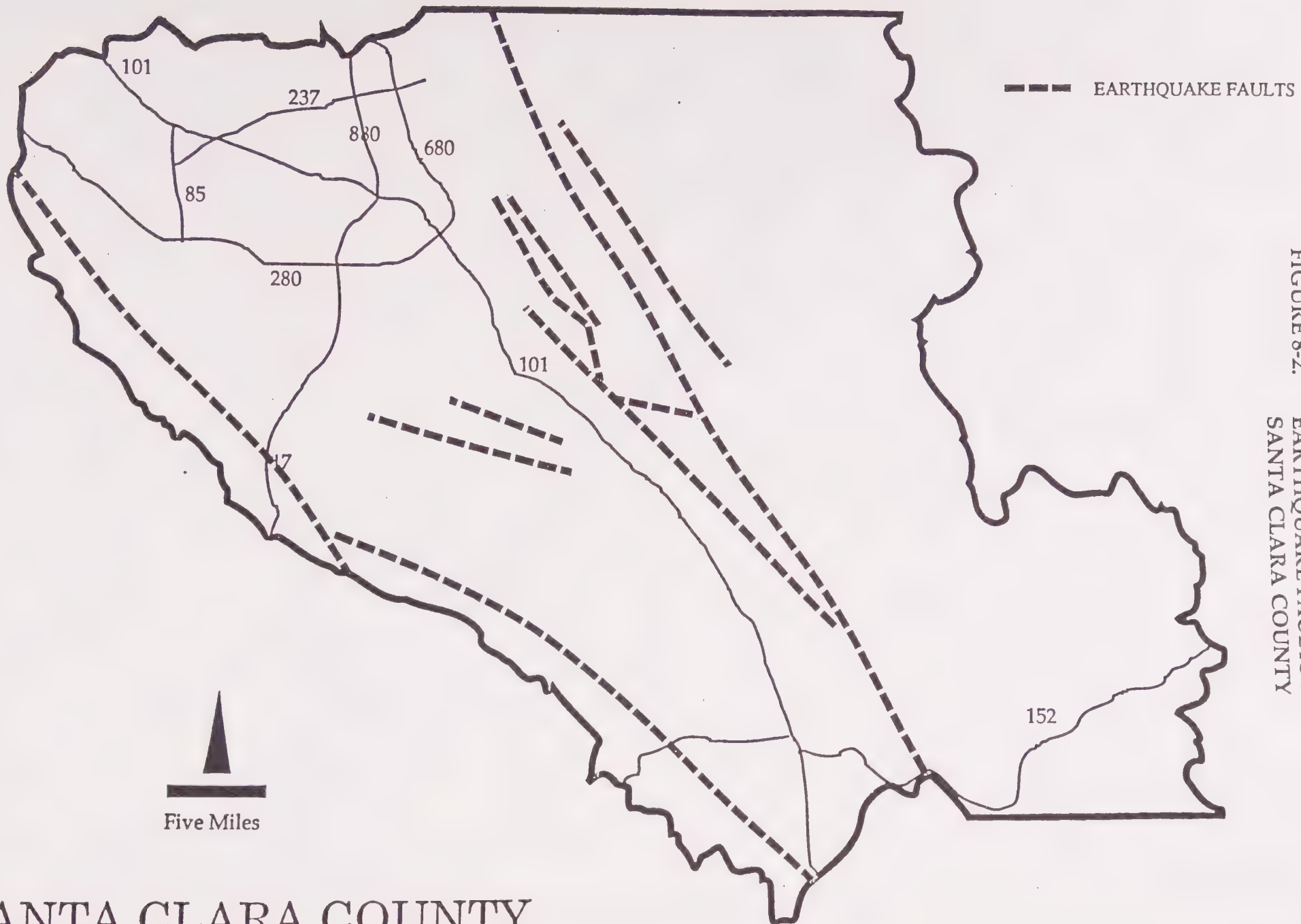
The siting map is intended to assist both a facility developer and the general public to plan for the actual siting process, but in no way substitutes for the extensive site-specific effort required for any facility development. The facility applicant will

FIGURE 8-1. DAM & LEVEE FAILURE INUNDATION  
AREAS IN SANTA CLARA COUNTY



SANTA CLARA COUNTY

FIGURE 8-2. EARTHQUAKE FAULTS IN  
SANTA CLARA COUNTY



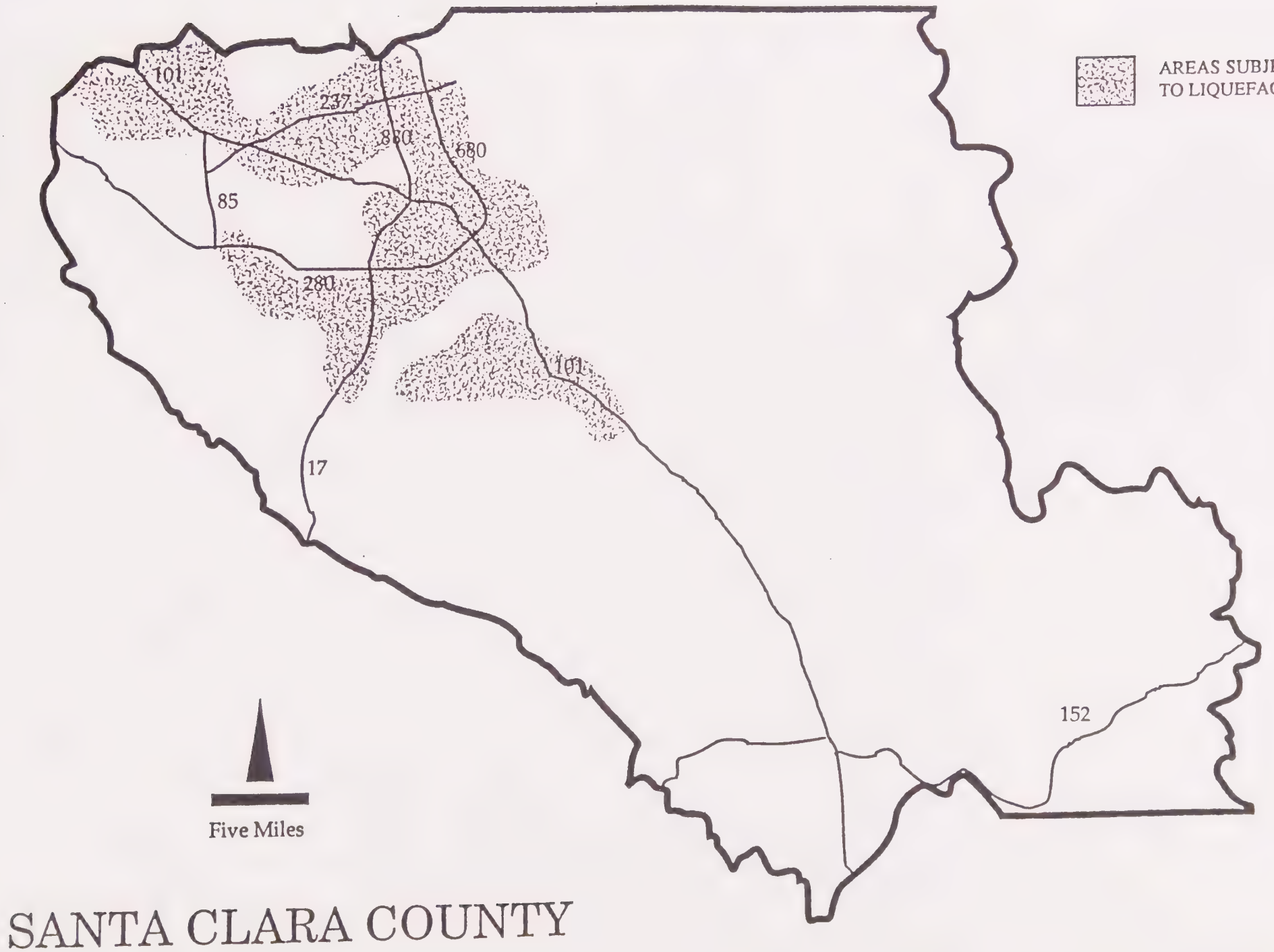


FIGURE 8-3. AREAS OF LIQUEFACTION IN SANTA CLARA COUNTY

# SANTA CLARA COUNTY

8 - 22

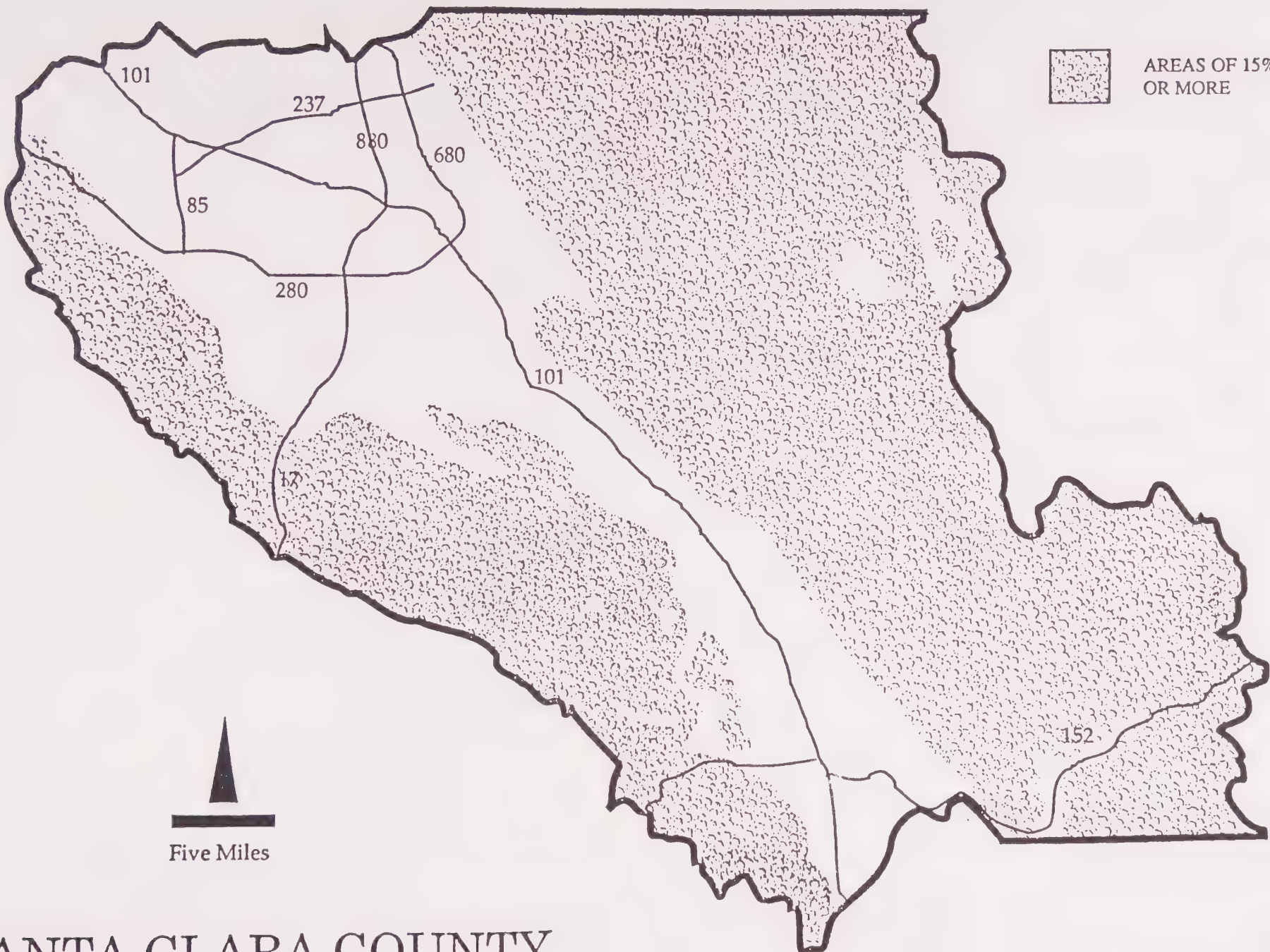


FIGURE 8-4.  
AREAS OF 15% (OR MORE) SLOPE  
IN SANTA CLARA COUNTY

have to do a site-specific evaluation of each criteria to assess the potential impacts of a proposed facility on the public health and safety and on the environment. In addition, the applicant should consult with the local planning department to ascertain the current General Plan designations and the General Plan amendment process, if a General Plan amendment is required.

## **CITY AUTHORITY TO IMPOSE MORE STRINGENT SITING CRITERIA**

As an additional protection, AB 2948 contains language showing that significant local authority exists to reject applications for hazardous waste facilities on the sites designated on the facility siting map. Health and Safety section 25135.7(d) states: "This section does not limit the authority of any city to attach appropriate conditions to the issuance of any land use approval for hazardous waste facility in order to protect the public health, safety or welfare, and does not limit the authority of a city to establish more stringent planning requirements or siting criteria than those specified in the county hazardous waste management plan."

## **CONCLUSION**

Through its adoption of the Hazardous Waste Management Hierarchy, the County strongly supports the reduction in hazardous waste generation at the source of manufacture or chemical processes as the most desirable option to manage hazardous waste. It is recognized that the implementation of the Hierarchy may result in significant changes both in the way hazardous wastes are generated and in the way they are managed. Consistent with the objective of AB 2948, that safe, effective, and economic facilities which protect public health and the environment are available when needed, the siting criteria for this CHWMP shall be used as standards for siting hazardous waste management facilities that are needed to serve the hazardous waste management needs in Santa Clara County.



## CHAPTER 9

### HAZARDOUS WASTE TRANSPORTATION ISSUES

#### INTRODUCTION

A significant quantity of hazardous waste (both imported and exported) is transported through the County on local highways and railways. Recognizing the potential risk of exposure to the public and the environment associated with transportation "accidents", it is important for the County to examine the current adequacy of the local hazardous waste transportation system and to identify any additional steps that may be necessary to prepare for and minimize these risks. In addition to analyzing the issues surrounding the transportation of hazardous waste in the county, this chapter presents several policies and recommendations designed to minimize the risks associated with transporting hazardous waste.

#### County Transportation Policies

The County recognizes that the safe transportation of hazardous wastes is of extreme concern to its citizens. The following policies address this concern and serve to reduce the potential for accidental spills and other hazards associated with hazardous waste transportation.

##### Policy 1:

Transportation of hazardous waste from the point of origin to the appropriate hazardous waste management facility shall be by the most direct legal route, utilizing state or interstate highways whenever feasible, and shall minimize distances along residential and other non-industrial frontages to the fullest extent feasible.

##### Policy 2:

Hazardous waste management facilities shall, where feasible, be located at sites which minimize the risks associated with the transportation of hazardous waste.

Residuals repositories may be located more distant from waste generation sources than other types of facilities, given their need for larger land areas.

Policy 3:

Transportation routes to and from hazardous waste facilities shall be designated as part of the permitting process to minimize negative impacts on surrounding land uses.

Policy 4:

All transportation routes shall be demonstrated to be safe with regards to road design, construction, traffic controls and signage.

Policy 5:

All new facilities shall conduct site specific transportation analysis to determine the potential impacts on proximate traffic capacity.

## HAZARDOUS WASTE TRANSPORTATION REGULATIONS

The most effective method for minimizing transportation risks is to reduce the quantity of hazardous waste generated. This is consistent with the CHWMP's waste reduction goal, to reduce or eliminate the generation of hazardous waste as expeditiously as possible. However, some waste will still be generated, necessitating development of a comprehensive hazardous waste transportation program which includes both regulation and enforcement.

### Federal Regulations

Hazardous waste transportation is regulated at the federal level by both the Environmental Protection Agency (EPA) [40 CFR Part 263 of the RCRA Regulations] and the U.S. Department of Transportation (DOT) [49 CFR, Parts 171 et. seq.]. EPA regulations are primarily concerned with avoiding hazardous waste (and/or hazardous materials) transportation-related spills and ensuring that such spills are completely cleaned up. DOT regulations are more focused on the protection of the personnel who handle hazardous materials shipments, including drivers and emergency response personnel. The regulations cover the shipment of more than

16,000 hazardous materials and require specific packaging, marking, labeling and placarding (signs), depending on the type of material being shipped.

## **State and Local Regulations**

The following state and local agencies are responsible for the enforcement of the above-mentioned federal regulations as well as for the implementation of state requirements at the local level:

### California Department of Health Services (DHS):

All hazardous waste haulers are required by state law to register with DHS. This acts as a form of licensing; only those registered haulers may legally transport hazardous waste. DHS also keeps track of the type(s) and amounts(s) of waste transported through a uniform Hazardous Waste Manifest System.

### California Highway Patrol (CHP):

CHP's responsibilities include the enforcement of DOT labeling requirements, the inspection of vehicles and waste containers, the overseeing of all applicable vehicle code requirements (e.g. specific routing restrictions), and the verification of proper manifest records. In addition, CHP can recommend (to DHS) to rescind the operating license of any registered hauler transporting hazardous waste in an unsafe or improper manner.

### California Department of Transportation (CalTrans):

CalTrans is responsible for maintaining all state routes (including highways and freeways). Among other duties, this requires responding to any hazardous materials transportation spills within their jurisdiction (i.e. state highways). CalTrans is responsible for identifying the spilled hazardous material (often in conjunction with local health authorities), arranging for spill clean-up, and recovering (from the transporter) any costs incurred from responding to the spill. In 1987 to 1988, CalTrans responded to 75 incidents in Santa Clara County. From January-July 1988, there were 65 incidents.

### Department of Motor Vehicles (DMV):

The DMV is responsible for administering a driver certification program for hazardous waste truck drivers. This special certification requires a training program to educate the driver regarding the emergency response characteristics of the materials they are hauling. This requirement (SB 895), which is currently part of the vehicle code, has a delayed implementation schedule while it undergoes a finding of consistency with DOT regulations.

County Environmental Health Services, Department of Public Health:  
Although not directly responsible for the regulation or monitoring of hazardous waste transport, Environmental Health routinely checks manifest records for wastes shipped off-site as part of its inspection of facilities generating hazardous waste in the County.

## TRANSPORTATION PATTERNS

Hazardous waste transportation in the County utilizes a system of railroads and interstate, state and county highways. In addition, military and civilian aircraft often overfly the county, carrying fuel and fluids which are toxic and/or flammable and unknown cargos which may include hazardous materials. Transmission pipes, some carrying flammable and explosive petroleum products, also run through the County. Finally, because the northern part of the county is contiguous with San Francisco Bay, it is possible, although highly unlikely, that hazardous materials and/or waste is carried into or out of the county by ship.

Currently, all hazardous waste shipped in or out of the county is transported by railway or highway. Aircraft and pipelines transport hazardous materials, not hazardous waste; as such these modes of transportation (plus waterborne transport) are not discussed below. However, two existing documents, "Santa Clara County Hazardous Materials Area Plan" and "Region II Local Emergency Planning Committee: Hazardous Materials Plan," do examine the need for emergency response capabilities associated with the transporting of hazardous materials by air, water, and pipeline. Several recommendations from the "Region II Local Emergency Planning Committee: Hazardous Materials Plan" for reducing the risks associated with railroad transport of hazardous wastes are included below.

### Railway

The use of the rail system in the county is generally limited to large bulk shipments (e.g. wastewater) and waste being shipped great distances (e.g. out of state). Two

railway lines – Southern Pacific and Union Pacific – serve the county. These lines are part of the state-wide railroad system, thereby linking the county to regions throughout California.

As with all business facilities that store and/or handle hazardous materials/waste on-site, railroad companies are required by law to develop hazardous materials management and emergency response plans. Railway hazardous materials management plans cover only those hazardous materials used on-site by the railroad company (e.g., for maintenance of transport vehicles, track, etc.) and do not address any hazardous materials they may be transporting.

DOT requirements prohibit rail carriers from storing "in-transit" railcars on-site for more than 48 hours (excluding weekends, holidays and irregular scheduling). However, railroad companies commonly lease their tracks for extended periods of time, thereby allowing cars loaded with a variety of commodities -- including hazardous materials/waste -- to be "stored" on their property. In such instances, the leasee is responsible for obtaining any required (storage) permits and/or preparing hazardous materials management and emergency response plans.

## Highway

Trucks are currently the preferred method of transporting hazardous waste both intra- and inter-county. Figure 9-1 shows the major state and interstate highways used for transporting hazardous waste in Santa Clara County. US-101, which runs north/south, is the most heavily-traveled highway in terms of automobiles as well as trucks. Interstate 680, entering from the north (Alameda County), also receives heavy vehicle use. I-280, I-880, SR-152 and SR-17 receive less use, but still represent major transportation corridors. US-101 and SR-152 (to the south) have particularly high percentages of truck traffic, suggesting that they are the primary hazardous waste/materials transportation corridors in the county.

FIGURE 9-1: FEDERAL & STATE HIGHWAYS IN SANTA CLARA COUNTY



Most of the large quantity hazardous waste generators in the county are located along or near I-880, I-680 or US-101. This proximity to major transportation corridors allows most facilities to utilize state or interstate highways for transporting waste, which is consistent with the state's hazardous waste transportation laws.

As shown on Table 9-1, in 1986, 87,430 tons of (manifested) waste were generated in Santa Clara County and shipped off-site. Seventy-five percent of this waste (approximately 65,000 tons) was exported for treatment and disposal to other counties within the state. The majority of this exported waste was sent to one of three hazardous waste management facilities in the state: the IT facility (Contra Costa County), the Kettlemen site (Kern County) and the Casmalia site (Santa Barbara County). The primary transportation routes to these three facilities were I-880, I-680 and US-101. The remaining 25 percent of this locally-generated waste (about 21,860 tons) was treated and/or disposed within the county, sent out of state for treatment/disposal, or categorized as "unkown".

Since 1987, the IT facility in Contra Costa County has been closed, with virtually no wastes being exported to that county. The result has been a reduction in wastes shipped north on I-880 and I-680 and a corresponding increase in shipments south via US-101 and US-152 and out-of-state along US-101, SR-152, I-680 or I-880.

As shown in Table 9-2, of the approximately 16,000 tons of waste treated/disposed of in Santa Clara County in 1986, 10,550 tons was generated locally. These wastes were typically shipped along the major highways within the county. A total of 3,675 tons were imported from 37 (California) counties, with an additional 1,680 tons from out-of-state. This imported waste was transported primarily on those major highways which are directly linked to the regional, state and/or interstate highway system.

The exact number of vehicles hauling hazardous waste is difficult to determine, particularly given the amount of waste shipped through the county from outside

**TABLE 9-1. DESTINATION & PROBABLE ROUTES OF (MANIFESTED) WASTE  
GENERATED IN SANTA CLARA COUNTY, 1986**

DISPOSAL COUNTY	PROBABLE ROUTE(S)	TONS	% TOTAL
Alameda	<i>I-680, I-880</i>	200	.2%
Contra Costa <sup>1</sup> (IT Facility)	<i>I-680, I-880</i>	23,660	27%
Fresno	<i>US-101, SR-152</i>	1,210	1%
Imperial	<i>US-101, SR-152</i>	10	.02%
Kern	<i>US-101, SR-152</i>	410	.4%
Kings (Kettleman Facility)	<i>US-101, SR-152</i>	13,500	15%
Los Angeles	<i>US-101, SR-152</i>	6,270	7%
Sacramento	<i>US-101, I-680, I-880</i>	100	.1%
San Bernadino	<i>US-101, SR-152</i>	220	.2%
San Diego	<i>US-101, SR-152</i>	30	.03%
San Francisco	<i>US-101, I-280</i>	50	.05%
San Mateo	<i>US-101, I-280</i>	6,880	8%
Santa Barbara (Casmalia Facility)	<i>US-101, SR-152</i>	9,350	11%
Santa Clara		10,550	12%
Solano	<i>US-101, I-680, I-880</i>	4,280	5%
Stanislaus	<i>US-101, I-280</i>	30	.03%
Unknown <sup>2</sup>		10,420	12%
Other (primarily out-of-state)		260	.3%
<b>TOTAL</b>		<b>87,430</b>	<b>100%</b>

<sup>1</sup> No longer operating

<sup>2</sup> Represents all wastes unaccounted for under the Hazardous Waste Manifest System. This primarily includes: wastes sent out-of-state and "suspense files" (manifest forms submitted incomplete and/or illegible).

SOURCE: Department of Health Services, Toxic Substance Control Division, Hazardous Waste Information System, 1986.

**TABLE 9-2. ORIGIN & PROBABLE ROUTES OF (MANIFESTED) WASTE  
TREATED/DISPOSED IN SANTA CLARA COUNTY, 1986**

COUNTY OF ORIGIN	PROBABLE ROUTE(S)	TONS	% TOTAL
Alameda	<i>I-680, I-880</i>	1930	12%
Contra Costa	<i>I-680, I-880</i>	200	1%
Fresno	<i>US-101, SR-152</i>	40	.2%
Los Angeles	<i>US-101, SR-152</i>	20	.1%
Marin	<i>US-101, I-280</i>	10	.06%
Monterey	<i>US-101</i>	20	.1%
Sacramento	<i>US-101, I-680, I-880</i>	70	.5%
San Benito	<i>US-101, SR-152</i>	10	.07%
San Francisco	<i>US-101, I-280</i>	90	.5%
San Joaquin	<i>US-101, SR-152, I-680, I-880</i>	130	.8%
San Mateo	<i>US-101, I-280</i>	840	5%
Santa Barbara	<i>US-101, SR-152</i>	30	.2%
Santa Clara		10,550	66%
Santa Cruz	<i>I-880</i>	60	.3%
Solano	<i>US-101, I-680, I-880</i>	30	.2%
Sonoma	<i>US-101, I-680, I-880</i>	30	.2%
Stanislaus	<i>US-101, I-280</i>	20	.1%
Tulare	<i>US-101</i>	20	.1%
Unknown <sup>1</sup>		1,680	11%
Other (primarily out-of-state)		50	.3%
<b>TOTAL</b>		<b>15,830</b>	<b>100%</b>

<sup>1</sup> Represents all wastes unaccounted for under the Hazardous Waste Manifest System. This primarily includes: wastes sent out-of-state and "suspense files" (manifest forms submitted incomplete and/or illegible).

SOURCE: Department of Health Services, Toxic Substance Control Division, Hazardous Waste Information System, 1986.

sources. Based on DHS manifest records documenting the number of vehicles legally transporting waste generated and treated/disposed of in the county, roughly 5,500 shipments occurred in 1986. This translates into slightly over 15 shipments per day, 365 days per year. As Table 9-3 illustrates, this volume of hazardous waste vehicles is not significant when compared to overall traffic in Santa Clara County. Traffic volume considerations for hazardous waste vehicles are therefore not as critical as transportation safety.

Table 9-4 lists the projected number of accidents per mile on state and interstate highways in the county. It is important to note that the category "trucks" includes all commercial trucks, not only hazardous waste vehicles. However, this table is useful in identifying those highways in the county with a higher likelihood for truck accidents. Even though the overall accident rate for trucks (including hazardous waste vehicles) is low, the potential risks are disproportionately high. Since a large portion of hazardous waste is transported on often-congested highway segments, the effects of an accident on motorists and traffic, not to mention nearby activities (industrial, commercial, residential, etc.), could be severe.

A number of improvement projects intended to upgrade the highway system in the county are currently underway. Table 9-5 (Phase I) is a list of those projects which have already been approved and have secured funding. Phase II & III are those projected road improvements which have been identified as needed, but have not as yet been approved or funded.

The current highway upgrade program, plus the recommended highway improvements, represent a total capital improvement program of over \$1 billion over the next 15 years. This highway improvement program will result in the ongoing maintenance, reconstruction and rehabilitation of the highway system in the County, thereby ensuring the continued safety and adequacy of the roads in Santa Clara County on which hazardous wastes are transported.

TABLE 9-3. TRAFFIC VOLUME ON FEDERAL & STATE HIGHWAYS, SANTA CLARA COUNTY, 1985-87

<u>ROUTE</u>	<u>DIRECTION</u>	<u>LENGTH (MI.)</u>	AVERAGE DAILY TRAFFIC		<u>% TRUCKS</u>
			<u>ALL VEHICLES</u>	<u>TRUCKS</u>	
SR-85	North/South	5.42	73,000	5,000	6%
SR-152	East/West	35.41	21,000	3,300	15%
SR-237	East/West	11.16	145,000	8,700	6%
US-101	North/South	52.52	621,000	45,300	7%
I-280	East/West	22.01	408,000	13,600	3%
I-680	North/South	9.94	194,000	6,800	3%
I-880	North/South	10.5	338,000	34,900	10%
<hr/>					
AVERAGE DAILY TRAFFIC: ALL VEHICLES			= 1,800,000/DAY	AVERAGE DAILY TRAFFIC: TRUCKS	= 117,600/DAY
TOTAL HIGHWAY MILES			= 147	TOTAL HIGHWAY MILES	= 147
TOTAL			= 12,245 VEHICLES PER MILE (PER DAY)	TOTAL	= 800 TRUCKS PER MILE (PER DAY)

SOURCE: State of California, Department of Transportation, March 1988, TSAS printout; State of California, Department of Transportation, July 1987, "1986 Annual Average Daily Truck Traffic on the California State Highway System"

**TABLE 9-4: AVERAGE ANNUAL REPORTED ACCIDENTS ON FEDERAL & STATE HIGHWAYS IN SANTA CLARA COUNTY, 1985 - 1987**

<u>ROUTE</u>	<u>ALL VEHICLES</u>	<u>TRUCKS</u>	<u>% TRUCKS</u>
SR-85	92	5	5%
SR-152	325	55	17%
SR-237	447	25	6%
US-101	1,948	149	8%
I-280	1,052	32	3%
I-680	320	20	6%
I-880	599	40	7%
<b>TOTAL</b>	<b>4,783</b>	<b>326</b>	<b>7%</b>

SOURCE: State of California, Department of Transportation, March 1988, TASAS printout.

## ROUTING RESTRICTIONS

The County has no restrictions which specifically prohibit the use of selected routes for hazardous waste haulers. In some communities in the Bay Area, local ordinances have been attempted which require hazardous waste carriers to use designated routes. However, these types of restrictions are somewhat controversial, and may be overturned or pre-empted by federal or state authorities if interpreted to interfere with reasonable and necessary access. As a result, if routing restrictions are developed which significantly impact hazardous waste carriers without valid health and safety justifications, such a local regulation could be challenged under interstate commerce regulations.

TABLE 9-5. PROJECTED ROAD IMPROVEMENTS FOR SANTA CLARA COUNTY (Millions of Dollars)

	ROUTE	COMMUTER LANES	HIGHWAY WIDENING	INTER-CHANGE/ GRADE SEPARATION	REGIONAL HI-WAY CONNECTION	INTER-CHANGE IMPROVE-MENTS	SIGNAL SYNCHRONI-ZATION	OPERA-TIONAL IMPROVE-MENT	CONSTRUCT NEW FREEWAY
P H A S E  I	SR-17		5.6						
	SR-85	9.4							445.2
	SR-152		34.2						
	SR-237	4.0				120.5			9.3
	US-101	122.6		25.6					24.7
	I-280	36.2	3.4	1.2					
	I-680								
	I-880	10.0		20.8				5.0	
P H A S E  II	SR-17			8.5					
	SR-85	5.0							34.9
	SR-152								9.0
	SR-237	36.2		20.0					
	US-101		5.0	5.0					
	I-280			1.2					
	I-680								
	I-880	7.0	10.4						
P H A S E  III	SR-17	3.0						5.0	
	SR-85								21.2
	SR-152								
	SR-237		66.0			15.0			
	US-101		81.4						
	I-280								
	I-680	5.0							
	I-880	5.0	8.6						

SOURCE: Transportation 2000, Santa Clara County Transportation Agency

However, AB 1961 (Campbell, 1986), which is now part of the vehicle code (V.C. 31303), does regulate the routing of all hazardous waste transportation in the state. The law requires that all hazardous waste haulers in the state do the following:

- Use the most direct state or interstate routes;
- Use the most direct (safe) route to and from the state or interstate;
- Avoid congested throughfares, places where crowds are assembled, and residential areas;
- Do not leave vehicles unattended or parked overnight in residential areas; and
- Use only highways of sufficient width and load bearing capacity for the vehicle or combination of vehicles.

## EMERGENCY RESPONSE CAPABILITIES

There are currently thousands of companies and businesses that transport, manufacture, store, use, treat, and dispose of hazardous materials and waste in Santa Clara County. Statistically, the county can expect to experience 500 to 600 accidental release or threatened release of hazardous materials annually. While most of these will be insignificant, the potential does exist for a large release to occur at any time. To deal with these emergencies, the *Hazardous Materials Area Plan* (Area Plan) was prepared. The plan covers incidents associated with transportation incidents as well as emergency response to hazardous materials incidents at industrial processing and/or storage sites, waste treatment, disposal sites, and sites of illegal dumping.

The purpose of the Area Plan is to:

- Identify procedures to be used in Santa Clara County to coordinate the management of hazardous materials;
- Provide guidance to those required to respond in the event of a hazardous materials release; and
- Define responsibilities and functions of each participating agency and organization, public or private.

The Area Plan was developed through the cooperative efforts of a committee of the Inter-Governmental Council (IGC), consisting of representatives from the County, cities, environmental organizations, and private industry. It is to be reviewed and, if necessary, revised on a triennial basis by the County and cities to ensure adequate coordination of responses.

The Plan is based on an operational concept of a coordinated multi-agency and industry response using personnel, equipment, supplies and communications in a structured and managed set of PRE-EMERGENCY PLAN, EMERGENCY RESPONSE and POST-EMERGENCY RESPONSE actions, with the County of Santa Clara Health Department as the administering agency.

## I. PRE-EMERGENCY PLAN

### A. Evacuation preplans, including:

- Possible release scenarios
- Notification of the anticipated affected public
- Mass-care facilities, reception areas and sheltering
- Ingress and egress routes and alternatives
- Procedures for post-emergency population recovery

### B. Train personnel in the application of specialized equipment and techniques and specific organizational concepts in response to hazardous material incidents.

### C. Purchase and maintain appropriate equipment, including hazardous materials vehicles (HMV).

### D. Conduct public education programs on a continuous basis to increase public awareness about hazardous materials.

## II. EMERGENCY RESPONSE

For each city and the unincorporated areas, the Area Plan will:

### A. Provide an estimate of the number of facilities handling significant amounts of hazardous materials/waste.

- B. Identify and map those areas with high concentrations of chemical-intensive industries ("critical response areas") which may pose a potential risk to public safety and the environment.
- C. Identify the agency responsible for responding to a hazardous materials incident.

### III. POST-EMERGENCY RESPONSE

- A. Coordinate on-site activities to ensure restoration of the scene to a normal condition after the incident.
- B. Maintain accurate records of expenditures, including time, material and equipment mileage, in order to assess financial liability/responsibility and determine source recovery procedures (i.e local, state, or federal funds).
- C. Coordinate with members of the response team to conduct a formal post-action review and evaluation.

## CONCLUSIONS

### Railway

*The Region II Local Emergency Planning Committee, Hazardous Materials Plan* concluded that planning coordination is needed at the state, county, and local levels to ensure adequate emergency response in the event of a railroad accident. This coordination should include cooperation between government entities, rail carriers and emergency responders, so that all participants can provide adequate input into the planning process. Specific planning efforts should focus on:

- Establishing notification procedures between rail carriers and emergency response agencies in the event of an accident;
- Identifying "hotspots" within a rail corridor where large volumes of hazardous materials/waste are loaded or unloaded;

- Encouraging railroads to provide emergency plans for mitigating on-site and off-site accidents; and
- Requesting carriers to furnish statistical data (e.g., type, quantity) of shipments to those jurisdictions/agencies that will be required to provide emergency response to accidents and mitigate the effects of accidents.

## Highway

Although state and federal regulations are generally sufficient to ensure the safe transportation of hazardous waste, regulated transportation routes (i.e. state and interstate highways) should be reviewed periodically to determine that road design and construction are adequate in relationship to current and projected levels of service and accident rates. In addition, the siting of any new hazardous waste management facility should take into account such factors as proximity to major waste stream generation, access to major transportation routes, and minimization of non-industrial frontages, particularly residential neighborhoods.

## Hazardous Materials Area Plan (Area Plan)

The Area Plan represents a major step towards establishing a coordinated, county-wide emergency response capability in providing a framework for mutual assistance or mutual aid among the agencies (i.e. jurisdictions) responsible for emergency response, as well as between these agencies and the private sector. When fully operational, this plan promises to minimize duplication of effort and ensure that properly trained and equipped personnel are available to respond to a hazardous materials incident in a timely and effective manner.



## CHAPTER 10

### HAZARDOUS WASTE LEGISLATION AND REGULATION

#### INTRODUCTION

Over the past ten years, hazardous waste management has become highly regulated. The Resource Conservation and Recovery Act (RCRA) [42 U.S.C. 6901-6987] has been the primary instrument for federal hazardous waste regulation. RCRA encompasses several pieces of legislation: the Solid Waste Disposal Act of 1965 (SWDA) and Amendments of 1980; the Resource Conservation and Recovery Act of 1976; the Hazardous and Solid Waste Amendments of 1984 (HSWA); and a portion of the Superfund Reauthorization Act of 1986 (SARA). RCRA implementation is being directed through the Environmental Protection Agency (EPA). The regulations governing RCRA implementation [40 CFR, parts 261-265] established standards and requirements for hazardous waste handling, storage, treatment and disposal; record-keeping; personnel training; and reporting to government agencies. This complex program of requirements affects all parties who handle hazardous wastes – generators, transporters, and treatment/storage/disposal facilities (TSDFs).

In addition to administering RCRA, the EPA administers other federal hazardous waste legislation pertaining to hazardous waste management and oversees state programs pursuant to laws which authorize states to implement federal programs. The other legislation includes (1) the Emergency Planning and Community Right-To-Know Act of 1986 [42 U.S.C. section 11001-11050], which establishes requirements for emergency preparedness and response; (2) the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or “Superfund”), which was expanded upon by SARA; (3) the Toxic Substance Control Act (TSCA) [15 U.S.C. Section 2601-2629] which requires the investigation of new or “new use” chemicals before human and environmental exposure; and (4) the EPA Storm Water Discharge Program, which requires all the cities in a county to obtain a

single National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharge.

State and local governments have also been playing an increasingly active role in the regulation of hazardous waste management practices. The following state and local legislation regulates hazardous waste management: (1) the Sher Bill (AB 1362), which regulates hazardous materials storage in under and above ground storage tanks using the model Hazardous Waste Materials Storage Ordinance (HMSO); (2) the Waters Bill (AB 2185/2187), which expands local HMSO programs by enacting the Hazardous Materials Release Response Plans and Inventory Act (Health and Safety Code 25500-25541); (3) the La Follette Bill (AB 3777/1059), which regulates the handling of extremely hazardous substances (EHS) over specified threshold levels; (4) the Hazardous Waste Memorandum of Understanding (MOU); (5) the Toxic Gas Model Ordinance (AB 1021); (6) the Cortese Bill; (7) the Safe Drinking Water and Toxics Enforcement Act (Prop. 65); (8) the Toxic Pits Cleanup Act (TPCA); (9) State Superfund (Carpenter-Presley-Tanner Hazardous Substance Account Act); and (10) the California Land Disposal Restriction Program.

Overall, the large number of reporting requirements and implementing agencies involved in hazardous waste regulation has resulted in a regulatory system which is potentially duplicative and enforcement which may seem confusing to the regulated community. In response, a recent Integrated Environmental Management Project (IEMP) study recommended that Santa Clara County establish a Toxics Coordinating Council to provide consistency at the local level by (1) developing guidelines for regulatory and public education programs, (2) overseeing data collection and plan updates, (3) investigating alternative technologies, and (4) providing a forum for gathering both industry and public comments on hazardous materials and hazardous waste management.

The following sections summarize major federal, state, and local hazardous waste management legislation and implementing agencies.

## FEDERAL LEGISLATION

### Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) [42 U.S.C. Sec. 6901-6987] encompasses several pieces of legislation: the Solid Waste Disposal Act of 1965 (SWA) and Amendments of 1980; the Hazardous and Solid Waste Amendments of 1984 (HSWA); the Resource Conservation and Recovery Act of 1976; and a portion of the Superfund Reauthorization Act of 1986 (SARA). RCRA implementation is being directed through the Environmental Protection Agency (EPA) under the guidance of 40 C.F.R. parts 261-265. (EPA requirements for state authorization are found at 40 CFR part 271).

RCRA has no local implementation agency and is currently being directed through the EPA. The State, however, will assume responsibility from EPA upon final authorization. The State Department of Health Services (DHS) oversees some permitting and inspection duties of large facilities within the County. The County has entered into an agreement with DHS to regulate the remaining generators (see Hazardous Waste MOU).

RCRA encompasses several programs, including:

- Hazardous waste classifications based on ignitability, corrosivity, reactivity and toxicity (40 CFR sec. 261.3);
- Regulation of hazardous waste generators (40 CFR sec. 262.11 places the burden of determining whether waste is hazardous on the generator of the waste);
- Regulation of hazardous waste transporters; and
- Regulation of facilities that treat, store and/or dispose of hazardous waste (40 CFR part 268 restrictions on land disposal).

RCRA also included a nationwide phasing-out of untreated hazardous waste disposed of in or on land by 1990 (includes liquid and solid hazardous materials deposited in landfills, land treatment areas, wells, waste piles, and surface impoundments). For every hazardous material banned, EPA must provide a standard for treatment which will allow the material to be disposed. The schedule of implementation for the program is outlined in Table 8-B of 40 CFR part 268.

DHS receives funding for inspection and permitting through an EPA grant.

### **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)**

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund) provides the legal and financial structure to deal with the clean-up of sites contaminated with hazardous waste. The Superfund Amendments and Reauthorization Act of 1986 (SARA), (Pub.L. 99-962, codified at various parts of title 40, U.S. Code) served to expand and strengthen the original CERCLA legislation. CERCLA implementation is being directed through the Environmental Protection Agency (EPA). There are provisions allowing for state and local involvement.

The best known result of the CERCLA legislation was the creation of the Superfund that may be used by EPA to finance costs of urgent cleanup and related activities pending recovery of expenses from "responsible parties" and for the cleaning up "orphan" sites. SARA also established a separate fund, the Leaking Underground Storage Tank Fund, to fund the cleanup of petroleum fuel leaks. The Superfund is primarily generated by a tax on domestic crude oil, imported petroleum products, chemicals used for feedstock, and business income. The fund is to be reimbursed through actions seeking recovery of cleanup costs from parties found to be responsible parties.

The Superfund program outlines the process EPA uses to achieve full site clean-up, including the following steps:

- The identification of contaminated sites through facility registration and hazardous waste release reporting requirements [42 U.S.C. sec. 9603];
- The prioritization of site clean-up and placement of the worst sites on the National Priority List (NPL). NPL sites are ranked within 15 categories.
- The identification of responsible parties. CERCLA section 107 (a)(4)(A) authorizes EPA to bring actions against responsible parties to recover clean-up costs.

At sites where federal Superfund dollars are paying for cleanup, states must contribute 10% of total clean-up costs. In addition, CERCLA required each state to present an adequate program to treat and dispose of hazardous wastes by 1989 in order to draw on the federal Superfund (see State Superfund).

### **Emergency Planning and Community Right-to-Know Act of 1986**

The Emergency Planning and Community-Right-To-Know Act of 1986 [42 USC, Section 11001-11050] was enacted as a freestanding Title III of SARA. The federal legislation, as partially implemented by 40 CFR parts 300 and 355, contains several programs which overlap the following state and local legislation: the Waters Bill (AB 2185/2187); the La Follette Bill (AB 3777/1059); and locally adopted versions of the Uniform Fire Codes. This legislation is implemented by the State Office of Emergency Services (OES) and appointed district committees, and funding sources are not clearly specified within the legislation.

The program contains four basic parts covering reporting and planning requirements for facilities handling, storing, or generating hazardous waste:

- State and local governmental emergency response plans for unauthorized releases of toxic and hazardous material; facilities must also submit inventory data to implementing agencies;

- Facility reports of unauthorized discharge of Chemical Emergency Preparedness Program (CEPP) chemicals to local emergency response personnel and implementing agencies;
- Existing manufacturing industries submittal of a Material Safety Data Sheet (MSDS) and an annual Chemical Inventory Statement. This has been expanded to include non-manufacturing industries (5/88) and new facilities (8/88); and
- Facility annual reports on non-accidental releases of chemicals on the Maryland/New Jersey List into the "environmental medium".

There are no provisions for trade secrets.

### Toxic Substances Control Act (TSCA)

Prior to the Toxic Substance Control Act (TSCA) [15 U.S.C. Section 2601-2629], there was no federal legislation to oversee the testing and regulation of the thousands of new chemicals being introduced each year. TSCA was developed to help fill these gaps in legislation and to insure investigation of new or "new use" chemicals before human and environmental exposure. TSCA is implemented by the EPA, and funding is fee-generated.

The legislation has two main components:

- EPA's compilation of information needed to examine new and "new use" chemicals which may pose a hazard to health and the environment. This includes manufacturer's tests and studies to identify and outline the effects of chemical use. EPA issues testing guidelines.
- EPA's regulation of production, use, distribution, and disposal of hazardous chemical substances. This includes the submittal by producers of a pre-manufacturing notice 90 days prior to scheduled production of a new or "new use" chemical. It may also include the issuance of an injunction to halt the production of chemicals deemed "hazardous" by EPA.

There are also provisions for exemption, trade secrets, testing cost-sharing between producers, and detailed regulation and banning of PCBs (polychlorinated biphenyls).

## EPA Storm Water Discharge Program

On November 23, 1988, EPA's proposed National Pollutant Discharge Elimination System (NPDES) Permit Application Regulations were distributed and published in the Federal Register (40 CFR Parts 122, 123, 124, 504). The EPA Storm Water Discharge Program (previously called the Nonpoint Source Program) has been expected by local governments for several years. The conceptual basis of the program is to require cities to obtain a single NPDES permit which would demand substantial reporting by the municipality of storm water discharges into the municipal storm drain system.

The proposed federal program requires local jurisdictions to implement a regulatory effort to monitor urban storm water runoff. The program for managing urban storm runoff will target municipalities with populations greater than 250,000 and 100,000 (six and eighteen respectively in California), with the latter group granted a one year delay. Deadlines for submittal of the first phase of the application process would commence one year after the final regulation is published. Activities that must be conducted by the municipality include:

- Receive, process, and store information regarding all facilities discharging wastewater into the municipal storm drain system, including facility information and laboratory analysis of property discharges to the storm drain;
- Develop and implement programs to prohibit non-storm water discharges into the municipal storm drain system;
- Implement controls to reduce discharges of pollutants to the "maximum extent practicable" using management practices, control techniques, and engineering methods;
- Establish a laboratory analysis program for wet weather flows for up to one hundred outfalls for an extensive list of contaminants;
- Establish a verification testing program (dry weather flows) for illegal connections and discharges; and
- Develop general pollutant reduction programs for both "permitted" land uses and general urban runoff.

The EPA Storm Water Discharge Program is analogous to the NPDES program administered by the State Regional Water Quality Control Board (RWQCB) and the pretreatment program administered by the Water Pollution Control Plants. The number of facilities, projects and properties that would require regulation is not known. The Santa Clara Valley Water District (SCVWD) has developed a data base that calculates the projected volume of surface water which is discharged from every parcel in the county that can be used for structuring a funding source for this program.

## **STATE AND LOCAL LEGISLATION**

### **Sher Bill (AB 1362)**

Before the passage of the Sher Bill (AB 1362), codified at California Health and Safety Code section 25280-25299.6, the County and its cities had already developed and begun implementation of local program based on a model Hazardous Materials Storage Ordinance (HMSO) to regulate hazardous materials stored in under- and above-ground storage tanks. The HMSO was adopted by every City in the county except Los Altos. HMSO funding is fee-based.

HMSO implementing agencies vary. The County regulates the cities of Los Altos Hills, Monte Sereno, and Saratoga, and all unincorporated areas through the County Health Department's Hazmat Section. Since the City of Los Altos did not adopt a local ordinance, implementation is through the County, as provided by the Sher Bill. As a result, Los Altos has no local regulation for above-ground storage tanks, and follows State, as opposed to HMSO, guidelines for monitoring. The Central Fire District is the regulating agency for the Cities of Los Gatos and Cupertino.

The remaining nine cities (Campbell, Gilroy, Milpitas, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara and Sunnyvale) implement their own programs through a branch of each city's fire department. While information

retrieval and storage may vary, the cities' HMSO programs tend to closely follow the model ordinance. With the passage of the Sher Bill, each City has amended its HMSO program to comply with state regulations.

The HMSO addresses several issues, of which the most important follow:

- Materials to be regulated;
- Construction and Monitoring Standards for new and existing facilities (including secondary containment), out-of-service facilities, and facilities in need of replacement or repair;
- A criteria for reportable and recordable discharges covering what discharges should be reported to the implementing agency or recorded on site;
- Regulatory Program Implementations including inspections and records, application for and denial of permits, enforcement, and general guidelines and;
- A Hazardous Materials Management Plan (HMMP) which requires facilities to provide information regarding facility and storage location, a Hazardous Material Inventory Statement (HMIS), and a Description of Monitoring Plan.

All of the information contained in the HMMP's is made available to emergency response personnel, and a variety of the information except that which is designated trade secrets is also available for public inspection (this varies between cities).

### **Waters Bill (AB 2185/2187)**

The Waters Bill (AB 2185/2187) expands existing local HMSO programs by enacting the Hazardous Materials Release Response Plans and Inventory Act [California Health and Safety Code Section 25500-25541]. The administering agency is the County Division of Environmental Health Services (Environmental Health) Hazmat Unit. However, the individual cities' HMSO programs handle Business Plan implementation. As administering agency, the County is required to develop an Area Plan for Emergency Response to handle the release or threatened release of hazardous material. Each implementing agency is developing its own required Data

Management System to handle information generated by this program. If necessary, funding can be generated through permit fees.

The bill also requires businesses which handle hazardous materials and waste over threshold amounts (liquid-55 gallons, solid-500 pounds, gas-200 cubic feet) to develop and file an annually updated Business Plan with the implementing agency. The Business Plan must include:

- A plan for Emergency Response
- An annual inventory of hazardous materials handled
- Employee training and information

The Business Plan, excluding any designated trade secrets, is made available for public inspection. The businesses must also, upon discovery, immediately report the release or threatened release of a hazardous material to the implementing City and State Office of Emergency Services (OES). Any facility inspection required under the bill will be conducted through local HMSO programs.

#### **La Follette Bill (AB 3777/1059)**

The La Follette Bill (AB 3777/1059) regulates the handling of Extremely Hazardous Substances (EHS) over specified threshold levels. The administering and implementing agency is County Environmental Health. Funding is fee-based.

The bill requires businesses to file an Acutely Hazardous Materials Registration Form, developed by OES. The County may also require an existing business or facility to submit a Risk Management and Prevention Program (RMPP). The RMPP is mandatory for new and modified facilities and must be updated every three years. The County is required to inspect each registered facility once every three years and is pursuing possible coordination with city inspection programs.

## **Hazardous Waste Memorandum of Understanding (MOU)**

The Memorandum of Understanding (MOU) between DHS and the County Health Department authorizes the County to perform annual hazardous waste inspections of all hazardous waste generators and grant hazardous waste generator permits. The program is implemented by the Division of Environmental Health Services, Toxics Enforcement Unit, and is fee-funded through permits.

## **Toxic Gas Model Ordinance (AB 1021)**

Program needs for detection, prevention, and control of toxic gas leaks, as well as local regulatory controls on toxic gases, are currently being reviewed. Under AB 1021, the Santa Clara County Fire Chiefs' Association received funding from the California legislature to develop a toxic gas model ordinance as part of a five-part study. The model ordinance was submitted to the State upon completion. In August, 1988, Article 80 of the Uniform Fire Code was adopted, providing some regulation on the storage, use, and handling of hazardous materials, including toxic gas. Both the model ordinance and Article 80 are currently being reviewed by the County, cities, and local interested parties to build a consensus on recommended regulations. Local implementation will be determined when the regulation process is formalized. Funding will most likely be fee-based.

## **Cortese Bill (AB 3750)**

The Cortese Bill (AB 3750), codified at California Government Code Section 65962.5, was created to alert land development applicants and local agencies of a proposed development on a known hazardous waste and/or substance site. The State Office of Planning and Research (OPR) coordinates the required information and distributes it to the city and county planning departments for public access.

The bill requires DHS, the State Water Resources Control Board (WRCB), and the California Waste Management Board to compile and submit lists of hazardous waste and substance sites to OPR. OPR compiles these lists and distributes the resulting list to each city and county in which sites on the lists are located. Local agencies may not accept an application for land development as complete until the applicant has consulted the OPR list and certified whether or not the proposed development site is listed. The program can be funded through application fees.

### **The Safe Drinking Water and Toxics Enforcement Act (Proposition 65)**

The Safe Drinking Water and Toxics Enforcement Act (Proposition 65), codified primarily at California Health and Safety Code section 25249.5 - 25249.13 and scattered sections in California Health and Safety Code sections 25100-25250.24, was passed by voter initiative in November 1986. Local implementing responsibility for Proposition 65 is through the County Division of Environmental Health Services and the Board of Supervisors. Enforcement actions may be brought by the attorney general, district attorneys, and certain city attorneys. There are no provisions for funding.

Proposition 65 was designed to:

- Protect drinking water by prohibiting any direct or indirect discharge of known cancer-causing agents or reproductive toxins into sources of drinking water;
- Require warnings before individuals can be exposed to known cancer-causing agents or reproductive toxins; and
- Require "designated" government employees to report potentially injurious illegal discharges to the Board of Supervisors and local health officer within 72 hours of discovery.

In addition, reports of illegal discharges must be made available to the local media "without delay". The County has developed procedural guidelines to implement this notification program. The guidelines also address emergency situations and public access to information on illegal discharges.

The portion of the program which prohibits the release of specified carcinogens and reproductive toxins into drinking water sources is under the direction of the State Health and Welfare Agency.

### **Toxic Pits Cleanup Act (TPCA)**

The Katz Bill (AB 3566) [California Health & Safety Code Sections 25208 et.seq.] was developed due to concern over liquid hazardous wastes or free liquids contained in hazardous wastes (collectively LHW) contaminating drinking or other water sources. The bill limits the discharge of LHW into surface impoundments (toxic ponds, pits, and lagoons) and addresses inspection, reporting, and enforcement provisions. There is no local implementation agency. DHS and the RWQCB review exemptions and various requests. Necessary funding is obtained through owner fees.

The Katz Bill establishes four bans on LHW discharges:

- LHW containing cyanide or PCBs (effective 1/1/85);
- Other "restricted hazardous wastes" (effective 1/1/86);
- All LHW discharges into facilities one-half mile upgradient of drinking water sources (effective 6/30/88); and
- All LHW discharges into surface impoundments (effective 1/1/89).

Some variances and exemptions are available, except for LHW containing cyanide or PCBs. A special exemption exists for surface impoundment of mining wastes.

### **State Superfund (Carpenter-Presley-Tanner Hazardous Substance Account Act)**

The State Superfund [California Health and Safety Code Sections 25300 et.s eq.] was created in response to the federal Superfund legislation (CERCLA). CERCLA specified that states needed to contribute 10% of total site clean-up costs in order to qualify for federal funding. The program is implemented by DHS. There is no local

implementation agency. Funding for the Hazardous Substance Account is primarily through taxation on hazardous waste disposal over 500 pounds per year. The State Board of Equalization sets this tax rate annually. State and local agencies are exempt. The account is also funded through fines, clean-up reimbursement and federal Superfund money.

The State Superfund program establishes the Hazardous Substance Account to supply funding for clean-up activities. DHS annually publishes a priority ranking list (3 tiered) for contaminated sites. A Remedial Action Plan (RAP) must then be developed for each site by DHS, the RWQCB, or a "liable party". The liable party is required to reimburse the HSA for funds used.

The program also covers abandoned sites, third-party compensation, inspections and public participation. Local governmental agencies may receive State Superfund assistance and can be named as liable parties.

### **California Land Disposal Restriction Program**

The California Land Disposal Restriction Program [California Health and Safety Code Section 25179.1 et. seq.] was developed in 1982 to address land disposal restrictions of hazardous wastes. It was expanded in 1985 by the Carpenter Bill (SB 509), and in 1986 by the Roberti Bill (SB 1500). The program parallels the HSWA Amendments of 1984 (see RCRA) that require a federal land disposal restriction program. DHS directs the program. There is no local implementation agency. Needed funding may be drawn from the Hazardous Substance Account (State Superfund).

The program creates a specific schedule for hazardous waste land disposal restrictions. The State is required to develop alternative treatments for any material banned from land disposal. This may include recycling. The final goal of the program is the full restriction of untreated hazardous waste land disposal by May 8, 1990. Detailed deadline dates are outlined in Table 8-A of 40 CFR part 268.

## REGULATORY REQUIREMENTS RELATED TO WASTE REDUCTION

A majority of the following hazardous waste legislation attempts to set up clear policy direction for the development of federal, state, and local waste reduction programs. Much of this legislation attempts to couple economic incentives and technical assistance with an ever increasing demand for both industry and local government to take responsibility for reducing the amount of waste generated in their own communities and facilities. A number of federal and state laws require waste reduction and recycling. Other legislation limits or controls the disposal of wastes to land, thereby providing regulatory incentives for waste reduction. Small quantity generators and households are also issues being addressed by hazardous waste legislation.

### Federal Legislation

The Hazardous and Solid Waste Amendments of 1984 (HSWA) amended RCRA to include a congressional mandate for waste minimization. For all hazardous wastes shipped off-site, the generator is required to sign a certification on the manifest stating that he/she (1) “has a program in place to reduce the volume or toxicity of such waste to the degree determined by the generator to be economically practical,” and (2) “that the proposed method of treatment, storage, or disposal is that practicable method currently available which minimizes the threat to human health and the environment” [40 CFR part 262, subpart B]. Generators are also required to submit biennial reports to EPA describing efforts to reduce the volume and toxicity of generated waste. In fact, the HSWAs declared that the reduction or elimination of hazardous waste, whenever possible, is a national policy.

In 1984, Congress directed the EPA to report on the feasibility of developing national regulations to make adoption of waste reduction techniques mandatory. In 1986, the EPA report concluded that mandatory programs would not be feasible or desirable at that time. EPA continues to collect and analyze data from generators and to assess

the need for statutory authority on waste reduction and will provide a follow-up report to Congress in 1990 based on these findings. Their second report to Congress will evaluate whether existing economic incentives have been sufficient to promote waste reduction, or whether some form of mandatory program is necessary to implement a national waste reduction policy.

In June 1987, Senate Bill 1331 (Biden) was introduced. This bill would establish a separate Office of Waste Reduction at EPA headquarters. It would provide for state technical assistance grants, low interest loans to generators for waste reduction efforts, a waste reduction information clearinghouse, guidelines for state reduction programs and a regulatory relief provision which could be used by states as a last resort.

### State Legislation

In approving AB 2948, ("Tanner Bill," codified at California Health & Safety Code Section 25135 et. seq.) the State Legislature found that "a solution to the safe and responsible management of hazardous wastes also requires improved programs for waste and source reduction and recycling and the encouragement of on-site treatment of hazardous wastes." Under the bill, each county is required to evaluate the potential for recycling hazardous waste and for reducing the volume and hazard of hazardous waste at the source of generation. Based on this analysis, a statement of goals, policies, and objectives must be developed.

DHS guidelines for AB 2948's implementation identify in greater detail the requirements for waste reduction that must be addressed in county hazardous waste management plans (CHWMPs). Waste reduction is defined in these guidelines to include on-site practices that reduce, avoid, or eliminate the need for off-site hazardous waste facilities. Primary consideration is to be given to activities which reduce off-site treatment and disposal needs and prevent materials from entering the hazardous waste stream. The CHWMP is also to include a discussion of already-

occurring or anticipated waste reduction and a projection of the County's waste reduction potential. These projections are to be based upon the following: DHS proposed source reduction percentages for various waste groups; the size and nature of the county's waste generating industries; the type, quantity and concentration of waste; current waste management practices; the existence (or lack) of a county waste reduction program; and other research and local surveys which can be used to project waste reduction potential. The guidelines also require a discussion of barriers to waste reduction, including: physical, technical, institutional, and financial barriers experienced by generators. Finally, the CHWMP must consider the need for and feasibility of establishing a local waste reduction program.

The Hazardous Waste Management Act of 1986 [Health & Safety Code, Section 25179.1 et. seq.] restricts the disposal of liquid hazardous wastes to land disposal facilities as of 1988. It also restricts disposal of untreated wastes to land as of 1990, unless the waste is generated from site cleanup efforts or has been treated to meet DHS treatment standards.

AB 685 (Farr), the Hazardous Waste Reduction, Recycling, and Treatment Research and Demonstration Act, provides grants to cities, counties, and private organizations for the commercial demonstration of hazardous waste reduction, recycling, and treatment technologies.

The Hazardous Waste Control Act requires DHS to prepare and update a list of hazardous wastes that are technologically and economically feasible to recycle. (Title 22, California Code of Regulations, Section 22 - 66796 contains the list of types of recyclable hazardous wastes, effective as of January 4, 1985. DHS has no formal plans to update this list.) DHS is also required under this bill to establish the California Waste Exchange and to encourage recycling and waste exchange. Generators must submit a justification to DHS for disposing of any hazardous waste considered to be recyclable.

Used oil legislation [California Health and Safety Code sections 25250.1 et seq.], which is administered by the California Integrated Waste Management Board (CIWMB), requires that used oil be collected and recycled to the maximum extent possible. The CIWMB is directed to encourage and promote used oil recycling and to prevent the illegal disposal of petroleum-based wastes. The law requires that used oil be collected and recycled, to the maximum extent possible, by means which are economical feasible and environmentally sound.

SB 14 (Roberti), The Hazardous Waste Source Reduction and Management Review Act of 1989, requires generators of over 13 tons per year of hazardous waste (or 26 pounds of extremely hazardous waste) to develop two documents: (1) a Source Reduction Evaluation and Review Plan, requiring evaluation of all potentially viable source reduction approaches for each major waste stream, and (2) a Hazardous Waste Management and Performance Report, requiring assessment of the effectiveness of previously implemented hazardous waste management procedures.

AB 496 (Hayden) defines the term "source reduction" as "any practice which either causes a net reduction in the generation of hazardous waste or lessens the hazardous properties of the hazardous waste generated." It would require DHS to give priority to source reduction in administering hazardous waste control laws and in guaranteeing grants and loans to hazardous waste generators for equipment, projects or facilities to be used for the reduction of hazardous waste generated.

### **Local Regulation**

At the present time, no formal waste reduction program or specific regulation exists in Santa Clara County. The County Tanner Advisory Committee, however, has formally adopted the hazardous waste management hierarchy, which will be used by staff to guide the further development of the County's hazardous waste management programs. In addition, both Environmental Health and water

treatment plant inspectors do informally suggest waste reduction options to generators during on-site inspections.

### **Small Quantity Generators**

Until 1984, small quantity generators (SQGs) were not regulated under RCRA. The passage of the Hazardous and Solid Waste Amendments then brought generators of between 100 and 1,000 kilograms (220 and 2,200 lbs.) of hazardous waste per month under the regulatory jurisdiction of RCRA [40 CFR 261.5, 262].

While facilities and businesses which generate less than 100 kilograms per month are not regulated under RCRA, they are regulated under California state law.

California law requires that:

- All hazardous waste be disposed of at a permitted facility;
- A Hazardous Waste Storage permit be obtained if wastes are stored longer than 90 days on-site;
- Operators of waste management facilities carry liability insurance; and
- Waste shipments be transported by a registered waste hauler and accompanied by a waste manifest which is filed with DHS. The California Health and Safety Code, section 25185, authorizes DHS to conduct inspections to ensure compliance with state law. In 1987, Santa Clara County signed a hazardous waste memorandum of understanding (MOU) with DHS which gave the County Division of Environmental Health Services the authority to permit, inspect, and monitor generators of hazardous waste in Santa Clara County. Under this agreement, County Health Toxics Enforcement Unit inspectors will conduct inspections of hazardous waste generators.

### **Household Hazardous Waste**

Household hazardous waste (HHW) collection efforts must also comply with applicable federal and state regulations. While HHW is excluded from the definition of hazardous waste in Subtitle C (which regulates hazardous wastes) of

RCRA [40 CFR section 261.4(b)(1)], HHW is regulated by Subtitle D of RCRA, a voluntary program for solid waste management. If a state develops and implements an EPA-approved plan, it is eligible for federal technical and financial assistance. The new regulations under Subtitle D were adopted during the summer of 1989. Under these rules, no hazardous waste (including household hazardous waste) will be allowed in solid waste facilities. The 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA required states to have a permit program in place by November 1987 for solid waste facilities which receive small quantities of hazardous wastes (i.e. from households). (California has had such a program in place since 1979.) The EPA has conducted studies of the current Subtitle D criteria to determine their effectiveness in protecting the environment and human health from groundwater contamination. These studies have led to the new rules which provide more stringent criteria for the ongoing permit program.

California law requires that all hazardous wastes, including HHW, must be stored, treated, transported, and disposed of in accordance with the Hazardous Waste Control Act [Health and Safety Code sections 25100-25250.24]. The regulations do not, however, apply to household hazardous wastes while they are in the home. When these wastes are collected for transportation to another site, as they are during a HHW collection event, the waste must be handled according to Title 22 of the California Code of Regulations (CCR), as well as EPA regulations implementing RCRA. California does not allow disposal of HHW to municipal landfills. When a city or county plans to hold a HHW collection day, it must obtain a permit or variance from DHS. In the event that any extremely hazardous wastes will be accepted on the collection day, a special permit must be obtained.

Another bill which regulates the management of HHW is AB 1809 (California Government Code, Section 66798 et.seq). AB 1809 requires that the State formulate policies to guide local governments in their efforts to provide services for the management of household hazardous substances. Under this bill, each county is required to include a program for the safe management of HHW in its solid waste

management plan, to the extent that the county determines a need for the program. In addition, the bill authorizes local jurisdictions to increase their solid waste collection fees or levy service charges or assessments in order to offset the costs to establish, publicize, and maintain their HHW management programs. No reimbursements are available from the State. The intent of the bill is to "educate the public about the products used in daily life which contain hazardous substances and then provide practical procedures for their disposal."

## **FEDERAL, STATE AND LOCAL AGENCIES RESPONSIBLE FOR IMPLEMENTING HAZARDOUS WASTE LEGISLATION**

### **United States Environmental Protection Agency (EPA)**

The United States Environmental Protection Agency (EPA) is responsible for the implementation of a number of major federal legislative acts with regard to the management of hazardous materials and wastes which affect local hazardous waste management planning and facility siting. These include the **Resource Conservation and Recovery Act (RCRA)** and the **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)**. The EPA is also responsible, though to a lesser extent, for implementation of the **Toxic Substances Control Act (TSCA)**, the **Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)**, and the **Occupational Health and Safety Act of 1970 (OSHA)**.

The **Resource Conservation and Recovery Act (RCRA)** regulates the disposal of both nonhazardous and hazardous wastes. In 1984, the **Hazardous and Solid Waste Amendment (HSWA)** significantly altered RCRA's hazardous waste management system. EPA's responsibilities under RCRA and HSWA include the following:

- Identification of hazardous substances and limits of concentration which do not affect human health;
- Development of a comprehensive hazardous waste management system which regulates generators, transporters and disposers. Generators regulated are those producing more than 100 kilograms per month;

- Promulgation of regulations dealing with land disposal restrictions on "listed" wastes by May 8, 1990, which includes a ban on underground injection by August 8, 1987;
- Issuing permits to each hazardous waste facility;
- Regulation of liquid underground storage tanks; and
- Provision for the development of state hazardous waste programs, which, upon approval of EPA, have the same force and effect as RCRA itself.

The EPA's responsibilities under CERCLA (Superfund) include the following:

- Development of a program which requires owners and operators of vessels and facilities to notify state and federal governments of authorized releases of any reportable quantity of hazardous substances to the environment;
- Establishment of a National Contingency Plan and necessary response authority;
- Creation of funds to finance remedial activity and compensate victims; and
- Creation of rules of liability which favor compensation.

EPA's responsibilities under TSCA include the following:

- Development of sufficient data to assess the effect of chemical substances and mixtures on health and the environment; and
- Regulation of the manufacture, distribution in commerce processing, use, and disposal of chemical substances which may present an unreasonable risk of injury to human health or the environment.

EPA's powers in TSCA override its responsibilities under RCRA, but are to be used only as a last resort, with preference being given to the prior use of environmental controls under existing legislation. One instance of use of TSCA is in the development of rules regulating the disposal of polychlorinated biphenyl (PCB).

State or local government can enact more strict regulations on substances regulated under TSCA.

EPA's responsibilities under FIFRA include the following:

- Establishment of regulations governing registration and use of pesticides, re-entry of agricultural workers into the field after use of pesticides, and determination of allowable content of pesticides in food, drugs and cosmetics. (A state may obtain the primary authority for regulating pesticides if the EPA finds their laws and regulations are adequate. California has not been so authorized.)

EPA's responsibilities under OSHA include the following:

- Although the Secretary of Labor is charged with promulgating occupational safety and health standards, EPA retains its authority to regulate chemical exposure in the field under FIFRA. EPA administers the program in California.

#### **United States Department of Interior, Bureau of Land Management**

The United States Bureau of Land Management (BLM) has extensive land holdings in California. They have mapped the entire state, showing state and federal lands such as national and state forests and parks, Indian trust lands, wildlife refuges, radio and air facilities, etc., at 1:100,000 (there are 97 maps available at \$4 each) and statewide map at 1:750,000 (currently out-of-print). The BLM is primarily concerned with emergency response and site remediation. They do not use California hazardous waste management facilities because "none meet EPA standards." The BLM has developed a number of regional land use plans. They participate in several interagency task forces on hazardous waste management with the United States Forest Service and United States Park Service, and would be useful participants in a local/regional advisory committee.

#### **United States Department of Agriculture, Bureau of Indian Affairs**

The United States Bureau of Indian Affairs (BIA) has the listing of all Indian Trust Lands and tribal governing bodies in California, with the corresponding map. This

has been copied for each DHS regional representative. The Indian tribes are regarded as sovereign nations and therefore do not have to abide by the laws of the local government jurisdictions, state, or federal government on their own lands. The tribes may or may not have planning documents which cover their lands. A few have planners on staff. The reservation sizes range from 20 acres to thousands of acres, while the rancherias are a small cluster of dwellings on a few acres and usually have no formal governing body. EPA governs the rancheria waste management problems.

Each reservation is independently governed. It is desirable to have tribal representatives of the larger and more organized tribes on the advisory committee for two reasons: (1) The reservations generate hazardous waste and the CHWMP must report how it is managed and (2) The tribes may be interest in having a hazardous waste management facility on the reservation as a revenue source. A BIA representative is not an adequate substitute for a tribal representative as the BIA does not have power to make decisions on behalf of the tribe, nor do the tribes necessarily trust the BIA to speak on their behalf.

### **United States Department of Defense**

The United State Department of Defense (DOD) prohibits the siting and operation of nonmilitary hazardous waste management facilities on any of its installations.

While private industry is precluded from siting facilities at military installations, DOD has indicated that increased private sector involvement may be necessary to assist in the collection, transport and recycling of wastes generated at installations not equipped to process their wastes on-site. This would require evaluation of future industry transportation and facility needs requirements and subsequent impacts upon local hazardous waste management planning efforts.

## United States Department of Interior, Fish and Wildlife Service

The United States Fish and Wildlife Service (FWS) is responsible for managing wildlife refuges and hatcheries in California, which are resting and nesting habitats for many federally listed endangered species.

Section 27.92 of 50 CFR, Chapter 1, states that "No person shall without proper authority construct, install, occupy, or maintain any building, log boom, pier, dock, fence, wall, anchorage, or other structure or obstruction in any national wildlife refuge." This section appears to preclude the siting or operation of hazardous waste facilities in such areas.

FWS has expressed concern over the possible siting of hazardous waste facilities near refuges and hatcheries because of their potential to create air and water pollution problems which would have an affect upon endangered species and their habitat. In the event that such a facility were constructed near a refuge or hatchery, FWS feels it could enforce certain sections of federal regulations relating to the "disposal of waste" within the refuge or hatchery. (In this case, "disposal of waste" would refer to emissions which entered the refuge or hatchery via air or water).

The service interprets its authority to initiate enforcement actions in cases where pollution appears to have an impact upon its refuges under federal regulations which prohibit the "the littering, disposing, or dumping in any manner of garbage, refuse, sewage, sludge, earth, rocks, or other debris on any national wildlife refuge...or the draining or dumping of oil, acids, pesticide wastes, poisons, or any other chemical type wastes...within any national wildlife refuge."

## State of California Highway Patrol

Transporters of hazardous waste in California are responsible for adhering to certain routing requirements enforced by the California Highway Patrol (CHP) pursuant to section 31303 of the California Vehicle Code (CVC). These requirements include:

- Transportation of hazardous waste from the point of origin to the appropriate waste facility shall be by the most direct route, utilizing state or interstate highways whenever possible;
- When transporting hazardous waste within a city or any other congested area, exceptions to the direct route shall be made in order to avoid congested thoroughfares, places where crowds are assembled, and residence districts;
- Transporters may also use highways which provide reasonable access to fuel, repair, rest, or food facilities that are designed and intended to accommodate commercial vehicle parking, provided access is consistent with safe vehicle operation and the facility is within one-half mile of identified points of entry or exit from the state or interstate highway being used;
- Only highways of sufficient width and load bearing capacity for the vehicle or combination of vehicles shall be used;
- Vehicles shall not be left unattended or parked overnight in a residence district; and
- Transporters shall comply with all provisions of the hazardous waste hauler transportation safety plan approved by the Department when transporting hazardous waste.

Deviating from the routes required by this section of the CVC can only be made in an emergency and with the concurrence of a member of the CHP. This law states that deviating from the routing provisions cannot be made on the basis of convenience.

State law authorizes the CHP, after consultation with the State Department of Transportation (DOT) or the city or county agency with traffic control jurisdiction

over the applicable highway, to close the highway to vehicles transporting hazardous waste. In order to do so, however, the following conditions must be met:

- The highway is posted by the agency having jurisdiction;
- The highway is included in a list of restricted highways maintained by the CHP;
- The highway is appreciably less safe than an alternate route meeting certain federal criteria;
- The restriction on the use of the highway is not precluded or preempted by federal law; and
- A finding is made by the CHP that the impact of the proposed highway restriction on the surrounding jurisdictions has been considered.

At the present time, the list of restricted highways maintained by the CHP only contains one entry. This entry is for State Highway 154 in Santa Barbara County. AB 1861 (Campbell, 1985) authorizes the establishment of specified routes, parking, and stopping places for transporters of hazardous wastes by the CHP in conjunction with local government. In developing the transporter aspects of the county hazardous waste management plan, CHP should be consulted.

#### **State of California Department of Transportation (Caltrans)**

California Administrative Code Section 1410.2 prohibits vehicles transporting hazardous materials or combinations of hazardous materials from operating on any toll bridge under the jurisdiction of Caltrans if the materials have been defined and prohibited by U.S. Department of Transportation regulations found in 49 Code of Federal Regulations (CFR) sections 177.821 - 177.823, which are incorporated into the California Code of Regulations.

In addition to the restrictions indicated, the following are not permitted on the San Francisco - Oakland Bay Bridge or the San Diego - Coronado Bridge under 21 CCR sections 1402.1 and 1403.1, respectively:

- Class and B explosives; and
- Tank vehicles which are placarded "Flammable" under Federal DOT regulations, whether loaded or empty.

Further, CVC section 31301 specifically prohibits the transport of any explosive substance, flammable liquid, petroleum gas or poisonous gas in a tank truck, trailer, or semitrailer through the Caldecott Tunnel located on State Highway Route 24, near the Alameda-Contra Costa County boundary at any time other than between the hours of 3 a.m. and 5 a.m. The classification of "flammable" applies to both hazardous materials and wastes.

Each county in California is required to develop a county or regional transportation plan. This plan is to be used to fulfill the transportation element requirement of a local General Plan. These transportation plans are to be amended annually and submitted to Caltrans for purposes of determining statewide transportation needs.

Counties are required to provide Caltrans with the name of the designate local agency responsible for development of the transportation plan. At present, the State is divided into 43 regional transportation planning agency areas. All street, highway, and mass transit projects supported by state and federal transportation grants must be consistent with these plans.

### **California Integrated Waste Management Board**

The following discussion describes the nonhazardous waste facility siting and permitting process administered by the California Integrated Waste Management Board (CIWMB). Although this process relates to nonhazardous waste facilities, the possibility may exist that certain residuals repositories may be sited on or near lands where such nonhazardous waste facilities exist. This may apply where the CIWMB has determined that a particular waste stream has been rendered "nonhazardous" or

where hazardous residuals could be deposited at a facility having status as both a nonhazardous and hazardous waste facility.

Persons planning to establish or operate a new solid waste disposal site, transfer station, waste processing, or resource recovery facility are required to notify the CIWMB of their intent. This notification must be made at least 45 days prior to the scheduled commencement of facility construction. A copy of the notice must be submitted to the local agency responsible for maintaining the County Solid Waste Management Plan (CoSWMP). Within 15 days after receiving notification from a project proponent or at the request of the CIWMB, the county is required to inform the CIWMB of its evaluation of whether the proposed facility is in conformance with the CoSWMP. Within 45 days after it receives notification of a proposed facility, the CIWMB is required to make a finding of conformance at a public hearing. This period may be extended by the CIWMB if additional information is required.

If the CIWMB determines that the facility is not in conformance with the CoSWMP, it must notify the county and the project proponent that:

- The project cannot be implemented; and
- An amendment to the CoSWMP can be submitted to the CIWMB which includes the proposed facility.

The CoSWMP adoption and amendment processes require approval from a majority of the cities within the county which contain a majority of the population of the incorporated area of the county.

Government Code Section 66796.30(b) requires any person operating or proposing to operate a solid waste disposal or transfer facility in California to file a permit application with the local enforcement agency (LEA) responsible for enforcement of landfill regulations adopted by the CIWMB at least 120 days prior to the date of operation. Within 120 days after it receives the application, the LEA is required to

either issue or deny the issuance of the facility permit. If a permit is developed, a copy is sent to the CIWMB, which has 40 days to review the permit for conformance with the CoSWMP and the County General Plan. If the CIWMB fails to take action within 40 days, it is assumed that the CIWMB has concurred in the issuance of the permit. If CIWMB objects to the issuance of a permit, they can modify it and submit it to the LEA for subsequent review and approval determination. If the amended permit is approved by the LEA and the CIWMB subsequently concurs in its issuance, the permit is then issued to the operator.

The LEA cannot issue, modify, or revise a permit unless it has provided the CIWMB and the applicant with a copy of the proposed permit 45 days in advance of any intended action. This draft permit must contain, at a minimum, the terms and conditions the LEA proposes to establish.

The LEA must also demonstrate that the city or county in which the proposed site will be located has issued a land use permit authorizing the establishment or expansion of their site. The facility permit generally contains certain information such as location, daily tonnage, types of waste accepted and site specific data, as determined by the LEA. In addition, the LEA may elect to incorporate certain restrictions or conditions within the permit to ensure that any previous violations are corrected and that future site operations will fully comply with the CIWMB operating requirements.

### **State of California Department of Forestry**

The policy of the State with respect to forest resources and timberland is contained in two laws passed by the legislature: The Forest Practices Act of 1973 and the Timberland Productivity Act of 1982.

The Forest Practices Act sets forth the following policy:

".... to encourage prudent and responsible forest resource management calculated to serve the public's need for timber and other forest product, while giving consideration to the public's need for watershed protection, fisheries and wildlife, and recreational opportunities alike in this and future generations."

In order to enact this policy, the act requires the Board of Forestry to adopt rules and regulations for the content of timber harvesting plans and conduct of timber operations. Counties may recommend additional rules or regulations for the content of timber harvesting plans and timber operations within their jurisdiction. The State of California Department of Forestry (CDF) is responsible for the enforcement and implementation of the act.

The Timberland Productivity Act of 1982 sets forth the following policies:

- Maintenance of the optimum amount of the limited supply of timberland to ensure its current and continued availability for the growing and harvesting of timber and compatible uses;
- Discouragement of premature or unnecessary conversion of timberland to urban and other uses;
- Discouragement of expansion of urban services into timberland;
- Encouragement of investment in timberland based on reasonable expectation of harvest; and
- Prohibition of the restriction or prohibition of timber operations consistent with forest practice rules adopted by the State Board of Forestry due to any land use in or around the locality of those operations.

Under the provisions of this act, all counties and cities with productive private timberland are required to establish "Timberland Production Zones" (TPZ). These zones are required to be established to discourage the premature conversion of timberlands into other uses, including urbanization. The land use element of a

General Plan must reflect the distribution of existing TPZ zoning and have a land use category that provides for timber production. TPZ are areas zoned for growing and harvesting timber and compatible uses which are rolling ten-year contracts providing preferential tax assessments to qualified timberlands.

A TPZ may be rezoned under certain instances, but rezoning must be approved by the board of supervisors or city council. If a rezone takes place, the subsequent land use must be a compatible use to the timber harvesting industry and can only become effective after the ten-year duration of the contract has expired. The local governing body may grant immediate rezoning in certain special cases. Before approval is granted, however, the State Board of Forestry must approve the request, which is then forwarded to the local governing body for subsequent rezoning.

The Timberland Productivity Act also allows the State to exercise its right to acquire timberland property through "eminent domain." However, the State policy relative to this right is "... to avoid, whenever practical, the location of any state or local public improvements and any improvements of public utilities, and the acquisition of land therefore, in timberland production zones."

Based on an analysis of the above two acts, it would appear unlikely that a hazardous waste management facility could be located in timberlands regulated by the CDF in California. While it is not expressly referenced in either act, this preclusion appears valid based on the restrictions on the types of activities allowed on these types of lands and the clear intent of State policy to assure that timberland resources are protected from incompatible land uses.

### **State of California Air Resources Board**

The State air pollution control districts (single-county districts) and air quality management districts (multi-county districts) have the authority to issue permits to stationary sources of air emissions and to adopt and enforce state and federal

regulations regarding emissions from such facilities. As such, these districts have the primary authority to issue permits for the following types of hazardous waste facilities: incinerators; storage and treatment facilities; transportable treatment units; and disposal facilities. The following procedures were developed by the State of California Air Resources Board (CARB) for districts to evaluate the potential impacts of proposed incinerators, storage and treatment facilities, transportable treatment units, and disposal facilities to be sited in their area of jurisdiction:

#### Incineration Facilities:

In evaluating the feasibility of siting an incinerator, a district must first review the application submitted by the project proponent. This is done to assess whether the project is subject to the review guidelines adopted by each district by comparing the proposed source type to the guideline criteria developed by the ARB. Under these criteria, all new, existing, or modified hazardous waste incineration facilities (including disposal, resource recovery and fume incineration) are subject to review. If a district determines that the facility is subject to ARB's review guidelines, they conduct health risk evaluations to consider potential health-related impacts which may be created.

Even if a district determines that the facility will emit an acceptable quantity of pollutants in maintaining public health, the district mandates that specific levels of control, emission limitations, or other permit conditions will be met by the facility once constructed. Further, before an Authority to Construct is issued, a district establishes an on-going evaluation process which assures that the mandatory emission limitations imposed in the Authority to Construct are being achieved.

The final phase of the permit process for an incinerator involves development of specific test burn protocol and an evaluation of test burn plans submitted by the applicants. After the test burn, if the facility has been found to be in compliance with the conditions of the Authority to Construct, a Permit to Operate is then granted. The Permit to Operate may contain specific conditions required by a district, including: conditions on handling residual wastes; monitoring and inspection requirements; and record-keeping requirements.

#### Storage and Treatment Facilities:

Each district regulates the activities associated with the air emissions from storage and treatment facilities located in their jurisdictions. In addition, districts also regulate the operations of transportable treatment units (TTUs). The evaluation criteria used to assess emission potential from these facilities are often similar to those used in assessing emissions from incinerators and other

stationary sources. TTUs are required to obtain a Permit to Operate from each district office in which the operator proposes to conduct business. This could result in some units not being permitted because off-sets may not be obtainable if a district office determines that mobile source off-sets cannot be applied to stationary sources of potential emissions.

#### Disposal Facilities:

The ARB currently does not regulate air emissions from solid waste disposal facilities (landfills) in California. However, several districts have developed regulations which may require operators to install methane collection systems and monitoring devices at both existing and proposed facilities. The district regulations may often contain specific testing guidelines and may require evaluation procedures similar to those used for new source review.

Residuals repositories may fall under the jurisdiction of districts that have adopted disposal site methane collection and monitoring regulations. These districts should be contacted for specific regulations affecting the siting of such facilities.

#### **State of California Energy Commission**

The State of California Energy Commission (CEC) approval is required before any new power plant greater than 50 megawatt can be constructed in California. Before granting its approval, the CEC must determine that the new plant is needed based on the commission's forecast of supply and demand. Plants under 50 megawatt generating capacity fall outside the regulatory jurisdiction of the commission. The CEC grants the final approval necessary for the siting of energy facilities in California, and precludes the approval of any local, state, or federal agency.

Hazardous waste facilities incorporating energy generating technologies (i.e., cogeneration plants utilizing hazardous waste as supplemental fuels) may fall under the regulatory purview of the CEC if the facility itself were generating over 50 megawatts of electrical energy output. The regulations adopted by the CEC would require the facility operator to submit data and information necessary for the commission to make its determination of "need" and to assure protection of the public and environment.

## State of California Governor's Office, Office of Planning and Research

The Office of Planning and Research (OPR) provides assistance with environmental review and permit processes to state and local agencies, project developers, and private individuals. Assistance is also provided to individuals seeking information on the requirements of the California Environmental Quality Act (CEQA) and related statutes. OPR also assists in coordinating meetings between key agencies which may be involved in a project. These meetings are intended to allow all agencies have jurisdiction over a project to share information concerning their particular role in project development.

OPR's Office of Permit Assistance (OPA) provides information on permits required for the siting of treatment, storage, and disposal facilities (TSDFs). OPA has a booklet available which describes the various permits required by state agencies for projects that affect the environment.

Under existing law, OPR is responsible for compiling information on hazardous waste/substance sites using information supplied by affected regulatory agencies. The information compiled by OPR must be distributed to each city and county in which sites on the list are located.

Before a local agency accepts an application for a development project as complete, the applicant is required to consult the lists sent to the affected city or county and submit a signed statement to the local agency indicating whether the project is located on a site which is included on any of the lists compiled for distribution by OPR. If the site is included on a list, the list shall be specified on the statement.

The information required by OPR of the following affected regulatory agencies by July 1, 1987 includes:

#### Department of Health Services (DHS):

- All hazardous waste facilities subject to corrective action pursuant to section 25187.5 of the California Health and Safety Code (H&S Code);
- All land designated as hazardous waste property or border zone property pursuant to section 25220 of the H&S Code;
- All information received by DHS pursuant to section 25242 of the H&S Code concerning hazardous waste disposals on public lands;
- All remedial action priority sites listed pursuant to section 25356 of the H&S Code;
- All sites included in DHS' Abandoned Site Assessment Program; and
- A list of public drinking water wells which contain detectable levels of organic contaminants and which are subject to water analysis pursuant to section 4026.2 or 4026.3 of the H&S Code.

#### State Water Resources Control Board (WRCB):

- All underground storage tanks for which an unauthorized release report is filed pursuant to section 25295 of the H&S Code;
- All solid waste disposal facilities from which there is a migration of hazardous wastes and for which the California Regional Water Quality Control Board (RWQCB) has notified WRCB pursuant to section 13273(e) of the Water Code; and
- All cease and desist orders issued after January 1, 1986, pursuant to section 13301 of the Water Code, and all clean-up and abatement orders issued after January 1, 1986 pursuant to section 13304 of the Water Code, which concern the discharge of waste which are hazardous materials.

#### California Integrated Waste Management Board (CIWMB):

- All solid waste disposal facilities from which there is a known migration of hazardous waste (annually submitted to the CIWMB by the LEAs). This list is then sent to OPR, which provides the list to interested parties.

## State of California Department of Conservation

The California Land Conservation Act, known as the Williamson Act, allows counties and cities to establish agricultural preserves and offer contracts to landowners for the purpose of protecting agricultural lands from premature conversion to other uses.

Owners of qualified lands who contract with a county or city must agree to continue agricultural or related activities on their lands for a period of 10 years. In so doing, the act provides that the local entity assess the property at its agricultural rather than market value. "Compatible use" is defined as "...agricultural use, recreational use or open space unless the board (of Supervisors) or council (City) finds after notice and hearing that such use is not compatible...". A city or county, therefore, defines what use would constitute a compatible activity.

The ten year contract is automatically renewed each year and may be terminated sooner by the owner if a "notice of nonrenewal" is filed with the appropriate local agency. The contract may also be terminated by the local entity provided certain specific findings are made. Each city or county in which any agricultural preserve is located must file a map with the State of California Department of Conservation (DOC) which shows the location of preserves which were in existence at the end of the preceding fiscal year. The DOC prepares an annual report for the state legislature which contains the number of acres of land under contract in each category and the number of contracts cancelled or terminated.

It would appear that hazardous waste facilities may not be able to fit the definition of "compatible uses" referred to in the act.

## State of California Tahoe Regional Planning Agency (TRPA)

As indicated on an exclusionary list of allowable land uses in the Lake Tahoe region in the *Regional Plan for the Development of the Tahoe Basin, Code of Ordinances*, all hazardous waste storage, treatment and disposal facilities are prohibited from being constructed in the Lake Tahoe Basin Region. The list contained prohibitions of activities which may be remotely associated with the development of hazardous waste management facilities (e.g., Collection Stations and Recycling and Scrap operations exclude the "temporary storage of toxic or radioactive waste materials"). While the list does not specifically identify hazardous waste management facilities, the Tahoe Regional Plan does state that only the land uses listed will be allowed. The regional plan is administered by the California Tahoe Regional Planning Agency.

The water quality control chapter of the regional plan briefly discussed the subject of toxic and hazardous substances as they relate to spill control. Within this discussion was the following statement:

"All persons handling, transporting, using, or storing toxic or hazardous substances must comply with the applicable requirements of state and federal law regarding spill prevention, recovery, and clean-up."

This statement relates only to spill prevention activities and not to the siting or operation of hazardous waste management facilities in the Lake Tahoe Region. Therefore, it appears that siting of hazardous waste facilities in the region is prohibited.

## State of California Department of Fish and Game

The State of California Department of Fish and Game (DFG) is responsible for the protection and conservation of fish and wildlife of the State. Under DFG law, it is unlawful for any person to conduct an activity of a public agency or public agency or

public utility to undertake a construction project which would "...divert, obstruct, or change the natural flow or bed, channel, or bank of any river, stream, or lake..." designated by the DFG. Certain procedures are required to be followed by DFG and the project proponents. These differ for projects proposed by public agencies and utilities versus private entities and are described below.

#### Projects By Public Agencies and Utilities:

Proponents of construction projects undertaken by a public agency or public utility are required to submit detailed reports, known as general plans, to DFG for review and assessment. DFG must review the report within 30 days. If the review shows that existing fish or wildlife may be "substantially adversely affected" by construction of the project, the DFG notifies the project proponent and provides them with reasonable modifications to mitigate these affects. At this point, the DFG may request an on-site inspection of the proposed project location to obtain information it may need in developing mitigation measures.

Project proponents have 14 days in which to examine the DFG's proposal and, if necessary, to request a meeting to discuss the proposal. The meeting must take place at least 7 days after the written request is received by the DFG. In the event that an agreement on the conditions of the construction project cannot be reached, an arbitration panel can be established, but only upon mutual agreement of both affected parties.

#### Projects By Private Entities

A person who wishes to undertake a project falling within the parameters identified must notify the DFG. If the proposed project appears to have a substantial adverse affect on an existing fish or wildlife resource, the DFG must notify the proponent of the measures which would mitigate these affects. DFG may, on its own accord or by request of the proponent, conduct an inspection of the project location. Project proponents have 14 days in which to respond to DFG proposals, and may request a meeting to discuss the recommended conditions. An arbitration panel may also be developed to respond to an impasse in negotiations.

The Fish and Game Code contains several sections relating to the disposal of substances and the clean-up of spilled petroleum products into the waters of the state which are monitoring considerations which would apply to a facility located near waters of the State.

## State of California Department of Conservation, Division of Mines and Geology

The Division of Mines and Geology (DMG) is responsible for identifying, governing the use of, and protecting the State's mineral resources. The chief legislation affecting local government is the Surface Mining and Reclamation Act (SMARA), which ensures that (1) adverse impacts related to mining are minimized and mined lands are reclaimed, (2) production and conservation of minerals is encouraged, and (3) residual hazards to public health and safety are eliminated.

SMARA requires cities and counties to regulate specified mining operations by local ordinance. State and local government, working together, are required to prepare a geologic inventory of selected mineral commodities within each "study region". The inventory must (1) identify the market area of the commodity, (2) project the future needs for the commodity within the region, and (3) classify the lands within the region as to the presence or absence of mineral resources. Once identified, the significant resources must be protected. Designation of boundaries, timing of protection, and boundary implementation must be contained in the General Plan. Approximately 90 local jurisdictions have ordinances and 57 counties have mapped mineral lands.

DMG has finished classifying urban areas which are primarily sand and gravel, and will be identifying other industrial minerals such as clay, diatomaceous earth, limestone, gypsum, etc. Beginning July 1, 1987, they began mapping all producing known deposits and prospective mines utilizing the United States Geological Survey (USGS) and DMG 1:250,000 scale maps. State Geological Map and Bulletin 191 describes and locates the State's mineral resources. A mining waste study, in cooperation with DHS, WRCB and UC Berkeley was completed in March 1988. The mining industry and DHS differ on their determination of toxicity in mining wastes.

DMG is also responsible for providing facility proponents with seismic information. Specifically, the Alquist-Priolo Special Studies Zone Act requires mapping of special study zones, generally one-quarter mile wide, along traces of potentially active and recently active major faults, within which construction of structures or use of the land may be restricted. Information identifying these study zones and related restrictions must be included in the safety element of each city or county's General Plan.

### **State of California Office of Emergency Services**

The State of California Office of Emergency Services (OES) is responsible for overseeing the development of county "area plans" required by AB 2185 (Waters 1985). Area plans are a composite of locally-required business plans for each business, covering the on-site management of hazardous materials and detailing their emergency response plan to respond to a release or threatened release of hazardous substances. Local governments are required to implement this bill. Most local jurisdictions have elected to implement AB 2185 through their fire departments and are gathering information primarily to provide safety for fire-fighters when they respond to fire emergencies at a business. Orange County is a notable exception. Utilizing the authority granted by the bill to gather any on-site data related to hazardous waste and materials, it has developed an excellent on-site data base. County Area Plans were due in December, 1986. OES is preparing a State Hazardous Materials Contingency Plan as required by Title III of SARA.

OES is also responsible for implementing the Federal Emergency Management Agency (FEMA) program to establish the flood prone areas required by the National Flood Insurance Program. Local governments must submit inundation maps showing areas of potential flooding due to dam failure to OES.

## **State of California Department of Parks and Recreation**

The California park system encompasses over a million acres of state-owned land and an additional 130,000 acres of leased land which were used by about 65,000 people in 1984. The State of California Department of Parks and Recreation (DPR) has three major missions: (1) preservation of the state's cultural heritage; (2) preservation of the state's natural heritage; and (3) presentation of significant recreation opportunities to state residents.

Since there are a significant number of people using state parks and recreation areas, and maintaining these areas requires use of hazardous substances, there may be need for hazardous waste transfer stations near some of the heavily used areas. In such cases, there could be impacts from the close proximity of the transfer stations and the recreational areas. Participation in the CHWMP planning process by representatives of major state park and recreation facilities may be useful.

## **State of California Department of Conservation, Division of Oil and Gas**

The Division of Oil and Gas (DOG) has mapped the location of every oil and gas well and related oil and gas field in the state. They have also mapped all geothermal fields and well locations (as has the Division of Mines and Geology). The maps are available at several scales ranging from a state map at 1:1750,000 to square mile maps at much larger scales.

DOG's main concerns are: (1) the regulation of underground injection of non-hazardous waste waters; (2) the disposal of left-over, in-well hazardous materials which need to be extracted when wells are abandoned; and (3) the disposal of hazardous oil and gas "cuttings" and sump materials (currently regulated by the WQCB).

There are 11,000 injection wells in the state; 1,100 of these are used for waste disposal and the rest for enhanced recovery of oil and gas resources. The wells range in

depth from 1200' to 5000', with most over 2500'. DOG has a video available on the safe use of injection wells for nonhazardous waste waters.

## **State of California Water Resources Control Board**

The State Water Resources Control Board (SWRCB) has overall responsibility for developing and implementing statewide water quality policy. This includes the formulation of basin water quality control plans (basin plans) which are developed and implemented by the nine Regional Water Quality Control Boards (RWQCB).

The SWRCB has four major duties related to the management of hazardous wastes:

- (1) To act as the State water pollution control board for all purposes stated in the Federal Water Pollution Control Act by: (1) restoring and maintaining the chemical, physical and biological integrity of the nation's waters and (2) prohibiting the discharge hazardous pollutants into navigable waters, both for point and nonpoint sources;
- (2) To ensure adequate protection of water quality and statewide uniformity in siting, operation and closure of waste disposal sites;
- (3) To compile hazardous substance storage statements by each city and county regarding storage of hazardous wastes in concrete sumps, unvaulted buried tanks or other underground containers; and
- (4) To determine, by rank, hazardous substance leakage from any municipal waste disposal site.

Since the RWQCB is empowered under the Federal Water Pollution Control Act, it can not regulate discharges to injection wells. (Injection well standards are set by EPA, which is empowered by the Safe Drinking Water Act). To fill in this gap, recent California statutes have set strict requirements for use of injection wells. EPA is also responsible for control of discharge of oil into navigable waters. Its implementing arm is the United States Coast Guard.

The basin plans are important in giving the SWRCB final control over the siting of land disposal facilities such as pits, ponds, lagoons and piles containing hazardous wastes, which are now banned.

It is recommended that representatives of the RWQCB or SWRCB be on local advisory committee.

### **State of California Coastal Commission**

The California Coastal Act of 1976 created a permanent California Coastal Commission and temporary regional commissions (which were dissolved in 1981) to "protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources." The implementation of this goal was the development of "local coastal plans" and the commissions "permit" development authority.

The term "development", as used above in reference to the California Coastal Commission's authority, is defined as any one of the following actions on land or in or under water:

- The placement or erection of any solid material or structure;
- The discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste;
- The grading, removing, dredging, mining, or extraction of any materials;
- The change in density or intensity of land use, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use;
- The change in the intensity of use of water, or of access thereto;

- The construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and
- The removal or harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).

As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

The California Coastal Commission has development control over a development zone ranging in width from a 1,000 yards to five miles along the state's 1,100 mile coast line. The development review process is concluded by the commission's issuance of a Coastal Development Permit to construct in the coastal zone. This Coastal Development Permit allows the construction of a specific development and does not control zoning charges or General Plan amendments.

The commission also has discretionary review authority over Local Coastal Programs. All cities and counties must develop Local Coastal Programs for any and all portions of the coastal zone in their jurisdictional authority. The Local Coastal Program includes:

- Land use plans;
- Zoning ordinances;
- Zoning district maps; and
- Other implementing action within sensitive coastal resources areas, which, when taken together, meet the requirements of and implement the provisions and policies of the Coastal Act at the local level.

A third type of review authority is "federal consistency" provisions. These provisions require that federal activities directly affecting the coastal zone, including development projects, must be consistent to the maximum extent practicable with a

federally-approved state coastal management program. Federal agencies are generally constrained from taking the following actions unless a state has found that proposed activities would be consistent with its management program:

- Issuing a license or permit for any activity affecting the coastal zone;
- Providing financial assistance to state or local government proposals affecting the coastal zone; and
- Granting a license or permit for an activity affecting the coastal zone, covered by a plan for the exploration or development of, or production from, areas leased under the Outer Continental Shelf Lands Act.

Federal activities, including development projects undertaken by federal agencies on federally-owned lands, are subject to the federal consistency provisions when the actions directly affect the coastal zone under the jurisdiction of the California Coastal Management Program.

Coastal programs may affect the siting of hazardous waste management facilities proposed in the coastal zones and should be reviewed to assure consistency between the CHWMP and the coastal land use plan and zoning regulations. The California Coastal Commission should also be referenced in describing permitting requirements within their area of jurisdiction.

### **State of California Lands Commission**

The State Lands Commission (SLC) is an independent commission directly accountable to the Governor, which has exclusive responsibility for administering ungranted and unpatented public lands owned by the state or lands under its control. Such controlled lands include vacant school lands, tidelands, submerged lands, swamps and overflow lands and beds of navigable rivers and lakes. The SLC has statutory authority to sell, lease, or dispose of land under its jurisdiction provided that the transaction is in the public interest. The SLC is also authorized to approve or disapprove permits for the private use of state lands.

At present, the SLC has jurisdiction over large holdings of state lands, including over 500,000 acres of vacant school lands and oil and gas holdings. Knowledge of the areas of jurisdiction under the SLC may be valuable when potential locations for hazardous waste management facility siting are being evaluated.

### **Airport Land Use Commission**

An Airport Land Use Commission (ALUC) is required in each county containing one or more public use airports. The function of an ALUC is to "formulate a comprehensive plan that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission". Since 1982, these airport plans are required to be directly linked to the General Plan and its implementation, and the airport land use plan takes precedence over city and county General Plans. A local legislative body, by a two-thirds majority vote, may override the airport land use plan if it makes specific findings to justify its actions.

Since the airport land use plan covers areas affected by the potential for aircraft safety-incidents and those which may be affected by noise from the airport and related airplanes, the areas covered by the plan may be extensive. Such land use plans often designate substantial areas of land to be used for light industry and commercial uses. If such land is identified as land which may be suitable for hazardous waste management facilities, potential incompatibilities connected with the airport land use plan and such facilities should be carefully examined and mitigated.

### **San Francisco Bay Conservation and Development Commission**

The San Francisco Bay Conservation and Development Commission (BCDC) is a regulatory and planning agency responsible for the development and implementation of "a comprehensive and enforceable plan for the conservation of

the waters of the San Francisco Bay to the maximum extent possible." The implementation tool for this plan is a permit system regulating filling and dredging in the Bay.

The goal of the plan is to improve, develop and preserve the shoreline to make the Bay more accessible to essential ports, water-related industries, airports, wildlife refugees, recreation, desalinization plants, and power plants. It governs the use of land within 100 feet of the shoreline and may have permit power regarding the establishment of new hazardous waste management facilities.

### **Special Districts**

Special districts often provide services similar to those offered by cities and counties and may acquire land for public works projects, dispose of land or construct or authorize a public building or structure, provided the affected city or county planning agency has reviewed the project's conformity with the general plan.

Public works projects proposed by a special district are required to be included in a city or county public works element of its general plan. Hazardous waste facilities being proposed in a given area may fall within the jurisdiction of a special district. In such cases, the district may assume lead responsibility for project construction or become involved in a regulatory role. In either case, the district rules and responsibilities must be investigated prior to project development and be included in the general plan.

### **Public Utilities**

Privately-owned companies operating under the jurisdiction of the State Public Utilities Commission (PUC) provide public services which are included in City or County General Plan. These services may include gas, electric, water, sewer and rapid transit. State law requires cities and counties to provide opportunities for

public utilities to become involved in preparing and implementing local general plans and, as such, should be contacted when a hazardous waste facility is proposed to be located in areas owned by these companies.



## CHAPTER 11

### IMPLEMENTATION PROGRAM

#### INTRODUCTION

Chapters 1 through 10 of this CHWMP describe existing hazardous waste generation patterns, waste management practices, and regulatory programs in Santa Clara County as well as goals, policies, and objectives for improving the county's overall hazardous waste management plans and system. The CHWMP calls for aggressive waste reduction at both new and existing facilities within the county, and for meeting waste management needs by siting needed waste management facilities in environmentally appropriate locations. Finally, the Plan calls for the utilization of interjurisdictional agreements for meeting some waste management needs consistent with local planning criteria.

This chapter identifies the steps necessary to achieve the goals and carry out the policies which are presented in Chapter 2 and throughout the Plan. Potential funding options are also discussed. Due to the fact that funding options have not been agreed upon for some of the activities included in this chapter, revisions can be expected as funding sources are identified and as implementation objectives are pursued. The County or any city within the county is not precluded from undertaking other activities as new priorities emerge and as funding becomes available.

Four specific areas have been identified for Plan implementation. Within each, a set of implementation objectives is provided. The four areas are:

1. Waste Reduction
2. Hazardous Waste Management/Facility Siting
3. Public Education and Involvement
4. Program Coordination and Compliance with Regulatory Requirements

Together, the objectives and activities in these four areas comprise the implementation program for the Countywide Hazardous Waste Management Plan. Pursuing activities in these four areas will allow the County and cities to improve the protection of public health, safety, welfare, and the environment while assisting both industry, small business, and public facilities in eliminating reliance on land disposal or improper waste handling with a minimum of economic disruption.

## **Program Areas**

### **Waste Reduction**

Initiating and encouraging waste reduction efforts is the most effective way to move all hazardous waste generators away from reliance on land disposal and "up the hazardous waste management hierarchy" and is one of the County's goals as stated in Chapter 2.

This section identifies six program components which, when fully implemented, shall achieve Santa Clara County's top goal in this Plan. These six components are (1) educational outreach, (2) technical assistance, (3) financial assistance, (4) regulatory measures, (5) public recognition, and (6) data tracking and development. In combination and if implemented successfully, these six program components can help to achieve moderate and perhaps even aggressive waste reduction in Santa Clara County during the planning period.

Presently, the Santa Clara Valley Water District has awarded a one year grant to the County to initiate a waste reduction program. This effort will focus on educational outreach and reducing some of the barriers to implementing waste reduction, especially for small generators. Funding and an institutional "home" for an ongoing waste reduction program, however, has not been decisively identified.

It is recommended that particularly the technical assistance component of the waste reduction program be housed in a local agency that performs related and ongoing regulatory inspections. Both the County Environmental Health Department and the Water Pollution Control Plants are capable of incorporating waste reduction opportunity assessments (the key technical assistance function) and the review of waste reduction plans into their hazardous waste inspection programs. Questions of staffing and funding have not yet been resolved regarding this component. Section B of this chapter lays out the activities that will be required to achieve the goals and carry out the policies in the CHWMP as they relate to waste reduction.

### Hazardous Waste Management/Facility Siting

This section addresses the need for carefully planned hazardous waste management facilities for wastes that cannot be economically reduced or eliminated. As the CHWMP states, "It is the County's intention to aid in meeting the needs of Santa Clara County hazardous waste generators by first helping to reduce hazardous waste generation; by siting needed and appropriate hazardous waste management facilities for waste streams that cannot be reduced economically; and by developing and signing intercounty agreements as a means of utilizing and providing regionally scaled facilities designed to meet the hazardous waste management needs of generators in several counties."

The County will use the two strategies of evaluating facility siting proposals and using interjurisdictional agreements to meet the needs of local hazardous waste generators for off-site waste management capacity. All of the activities discussed in this section are processes and procedures that will be incorporated into ongoing development and environmental review mechanisms and will require increased staff time and coordination between agencies. Funding for additional staff time may be recouped by instituting or increasing existing permit or plan review fees.

The third strategy, Industry-Government Partnership, refers to the need for a continued mechanism for information sharing on hazardous waste management concerns between local government and industry. This "partnership" can occur through a mechanism as simple as bimonthly or quarterly meetings between industry representatives and county (and city) staffs from County EHD, Toxics/Solid Waste Management Unit, County Fire, POTW's, local planning agencies and other departments. These meetings can also be utilized to gather information for the update of the CHWMP and for the annual progress reports concerning both the City-County Hazmat Agreement and the CHWMP. Staff time will be the major economic cost involved in this effort. Staff from existing programs should be released to attend these meetings as well as to perform background research and logistical tasks that may be necessary to the ongoing functioning of this activity. These meetings can also be combined, when appropriate, with ongoing City-County Hazmat Agreement meetings.

#### Public Education and Involvement

This section recognizes the need for both passive measures and active roles that may be taken to educate and involve residents countywide in hazardous waste management and materials issues. Two sets of activities are identified. First, involvement in household hazardous waste programs is recommended as the single best opportunity for active public involvement in improved waste management practices. The County Tanner and Solid Waste staffs will submit a proposal to the Intergovernmental Council (IGC) in the Fall of 1989 which identifies a funding source which, if accepted, will provide some level of ongoing collection opportunities as well as educational outreach about household hazardous products to residents countywide that do not currently have access to this type of service. County and city staff will be needed to continue to develop HHW programs. In general, funding for these programs should be provided by those who will benefit from this service. Potential funding sources include the landfill tipping fees, a

refuse or utility bill surcharge, start-up grants and competitive grants, and surcharges on products which require special handling and disposal.

Second, educational outreach efforts will improve the level of public understanding of the need for improved hazardous waste management. These activities will require coordination between local government and local organizations such as: neighborhood groups, employee organizations, community service organizations, trade associations, and school advisory councils. The use of volunteers and existing staff will be needed to provide speakers for workshops, to develop articles and brochures, and to provide technical assistance for various activities. Additional staff time may be needed to develop school and community educational programs or pilot projects. Funding options also include those mentioned above.

#### Program Coordination and Compliance with Regulatory Requirements

This section includes measures to improve coordination between the CHWMP and other hazardous materials and wastes programs. Such activities include agreements among agencies to conduct joint inspections or to cross train inspectors, and developing mechanisms to disseminate information or share data with the regulated community (as also discussed in the "Waste Reduction" section). Other strategies which can enhance regulatory compliance and regulatory program development include the requirement for new and existing facilities to submit a waste reduction plan as part of a local governmental approval process.

Many of these proposals involve agency staff time and review of existing program formats. It is anticipated that these implementation objectives will be pursued as funding becomes available and as specific local government agencies come to recognize the potential of these activities both to enhance regulatory compliance and to eliminate undue overlap in hazardous waste/materials program responsibilities.

## Funding

Little or none of the implementation activities discussed in this chapter can be pursued without adequate local government resources. More effective coordination between agencies might free up some existing resources, but others will be needed. Several possible funding mechanisms may be available to pay for implementation of program components. While a few funding options were mentioned earlier in this chapter, this section provides a more in-depth discussion of potential funding alternatives for CHWMP implementation. In general, funding may come from regulatory and plan/permit review fees, general funds, state and federal grants, local foundations, community groups, and private industry.

Federal, state and local government hazardous materials and waste programs are funded in a variety of ways. Aside from the direct appropriation of public monies, state and federal options generally involve taxes and fees on the regulated community. The most common funding mechanisms are "feedstock" taxes levied on hazardous substances used in production and "waste-end" taxes levied per unit of waste at the point of treatment or disposal. Each of these approaches has its advantages and disadvantages. The "feedstock" approach provides a more predictable source of revenue but does not offer an incentive to waste reduction. "Waste-end" taxes, such as the State Department of Health Service (DHS) Hazardous Waste Control Account, provide an inducement to reduced use of land disposal but do not necessarily offer a predictable revenue base. State or federal funding can be utilized at the local level for start-up costs but revenue for a continuing program, such as an ongoing reduction program must be generated locally. Long term support for local waste reduction programs from the Environmental Protection Agency is not likely until at least 1990 when the effects of the 1984 RCRA Amendments upon waste reduction efforts will be evaluated. State funding sources are competitive and few in number. For instance, DHS currently administers the AB 685 waste reduction demonstration grant program (\$1 million/year) for project funding that must be partially matched by the recipient.

Local funding options which have been identified include (1) grants, (2) a local funding formula to be shared by industry and local jurisdictions, (3) generator inspection fees, (4) permit fees, (5) taxes on off-site hazardous waste management facilities, and (6) penalties collected for hazardous waste management violations.

1. Grants:

As mentioned earlier, initial start-up costs for some components of a waste reduction program have been funded for one year by the Santa Clara Valley Water District (SCVWD). The County Tanner staff will undertake grant activities beginning on May 1, 1989. Ongoing funding for the waste reduction program and other activities must be provided through one of the other local options previously mentioned, or new sources will have to be identified.

2. Local Funding Formula:

The County has developed a preliminary strategy which may be utilized to fund CHWMP implementation. This strategy would provide for the sharing of implementation costs by industry and local jurisdictions based on tonnage of hazardous waste generated, population, and amount of waste generated within each jurisdiction. Fifty percent of the cost of the implementation will be borne by industry based on the amount of waste generated, and fifty percent will come from local jurisdictions based both on population and waste generated with a minimum contribution from all local entities (see page 11-51 for a fuller description of this funding formula).

3. Generator Inspection Fees:

Currently, the County Environmental Health Department (EHD), through a Memorandum of Understanding (MOU) with DHS, inspects hazardous waste generators in Santa Clara County. The County has adopted a fee for this service assessed to hazardous waste generators. The inspected generators are able to deduct the amount of this fee paid to the County from the fees that they pay to the State Board of Equalization based on the volume and treatment/disposal method used. There exists a potential for increasing the County's share of the fees, resulting in less money going to the State, but the generators will face no net fee increase. This mechanism is already being used in Ventura County to fund a hazardous waste reduction program. Fees can be assessed on the basis of firm size or waste generation. The latter is less predictable as a funding source but more of an incentive to reduce waste generation.

4. Permit Fees:

Fees for permit applications and renewals can be added or increased to pay for hazardous waste management and reduction activities. Industrial dischargers,

for instance, can be assessed a fee by the POTW's based on the size of the firm or on the hazard and amount of effluent discharged. In addition, cost recovery for waste reduction certification or plan review (for new facilities) can be recouped from plan check or permit review fees.

5. Tax On Off-site Hazardous Waste Management Facilities:

AB 2948 added Section 25173.5 to the State Health and Safety Code. This provision allows local government to assess a tax up to 10% of gross receipts from any off-site, multi-user hazardous waste treatment, storage or disposal facility. The fee is assessed by the jurisdiction in which the facility is located. This source of funding can only be used for expenses that are directly related to the enforcement or monitoring of the facility or for emergency response programs. Although this fee has limited uses, it is possible that assessment of the fee will allow existing funding to be diverted to another program. Santa Barbara County, for instance, has utilized this funding source to pay for a countywide household hazardous waste program. It should be noted that if this fee or tax is too large and the increase is passed on to facility users, it may discourage the use of treatment facilities and in some cases lead to improper waste disposal.

6. Violation Penalties:

Another option is to use a portion of the penalties that are collected for hazardous waste management violations to fund components of a waste reduction program. In this case greater voluntary compliance would result in decreased funding.

Overall, the following principles shall guide the selection of funding options:

- Ensure that any additional financial burden on the private sector does not lead to increased illegal disposal;
- Whenever possible utilize existing program functions or structures to minimize administrative costs;
- Consider more than one mechanism to broaden the revenue base; and
- Provide financial incentives for waste reduction and disincentives for waste generation.

## WASTE REDUCTION

Local governments – cities, counties, sewer and water agencies, and other special districts – have an important role to play in helping industries, small business, and public facilities reduce their use of hazardous materials and the generation of hazardous waste. Compared with other levels of government, they are the closest to the problem as well as the solutions. It is also the local community that has the most to gain or lose from the health of the local economy and environment.

That is why Santa Clara County's top priority in this Plan is to reduce or eliminate the generation of hazardous waste as expeditiously as possible through the adoption of the hazardous waste management hierarchy by all generators including large industry, small quantity generators, local government and households. The County has adopted the hierarchy to indicate its intention to utilize the priorities it lays out as a foundation to guide and formulate current and future countywide hazardous waste management policy and programs. Chapter 7.0 defined and discussed the practices which make up the hierarchy. They include, in order of priority, source reduction and toxics use reduction; recycling; on-site treatment methods; off-site treatment methods; and finally, disposal in a residuals repository. The first three categories of practices – source and toxics use reduction, recycling, and on-site treatment – are considered waste reduction practices because they lead to reduction of hazardous waste within the manufacturing process and at the site of waste generation. By promoting waste reduction, local government reduces chemical risks to the community; reduces the need for siting off-site hazardous waste management facilities; encourages industrial efficiency; and develops a positive working relationship with local businesses. These practices are encouraged and emphasized in this Plan and particularly in the implementation program below. When waste cannot be reduced by utilizing waste reduction techniques, off-site treatment methods in combination with the use of secure modes of transportation (and disposal of residuals in a repository) constitute the next best waste management

practice which is available to generators as a component of the hazardous waste management hierarchy).

The development and implementation of an effective local waste reduction program will accomplish a number of goals:

Goal 1:

To encourage industry to utilize hazardous waste reduction practices as well as to develop waste reduction plans.

Goal 2:

To address the needs of small quantity generators for information on available waste reduction techniques and regulatory compliance, technical assistance, capitalization, and convenient waste exchange and recycling services.

Goal 3:

To investigate manufacturing processes and operational practices which produce hazardous waste at public facilities such as airports, transportation agencies, and general services agencies, and identify waste reduction opportunities.

Goal 4:

To provide more accessible household hazardous waste education and collection services which will reduce the amount of household hazardous waste which is improperly disposed of "down the drain" and in to our municipal solid waste landfills (further addressed in the "Public Education and Involvement" section of this chapter).

The achievement of these goals will require the adoption of official policy, such as the hazardous waste management hierarchy; commitment from government to help to overcome the barriers to reducing waste; participation from industry; and support from the public. These four elements will provide leadership and support which are necessary to achieve moderate or maximum levels of waste reduction in Santa Clara County during the planning period (e.g. through the next decade) and beyond.

While basic economic incentives make moderate waste reduction efforts appear probable for some companies, aggressive waste reduction across industry groups and especially for small generators will be enhanced and in some cases require policy development and public support, and the commitment and participation discussed above. A successful waste reduction program will, over time, actually reduce the tonnage and toxicity of waste which is generated countywide. Achieving this goal will require the development and implementation of six components to be applied to public facilities, as well as large and small businesses. These components are:

1. Educational Outreach
2. Technical Assistance
3. Financial Assistance and Economic Incentives
4. Regulatory Measures
5. Public Recognition and Information
6. Data Tracking and Development

### **Educational Outreach**

The educational outreach component of a waste reduction program uses information and outreach to encourage area firms to voluntarily reduce their hazardous waste generation. Waste reduction programs, at least in the short run, must rely on an imperfect body of technical information about techniques and practices which can reduce waste. Despite this fact, the available knowledge and experience has proved useful to many generators around the country. Federal, state, and local programs are slowly expanding the body of information which can bring more precision to waste reduction efforts in the future. In addition, nontechnical steps such as improved operational practices can result in a substantial decrease in the amount of hazardous waste which is generated by a particular facility.

Initial low cost strategies involve facilitating information exchange between the public and private sectors and within the private sector, providing educational and technical assistance that can reduce or eliminate barriers to waste reduction efforts, and encouraging or requiring that generators develop in-house waste reduction plans and programs.

Industry and especially small quantity generators (SQG's) continue to need accurate information on waste reduction techniques, regulatory requirements, and the economics of implementing waste reduction measures. Lack of such information is the most frequently cited barrier to developing in-house waste reduction programs, especially for small quantity generators. As explained in Chapter 4, due to a lack of information and training some generators engage in disposal practices which do not meet regulatory requirements.

Cooperative education efforts that bring together as many participants as possible will be the most successful. Local government will need to work with industry, small generators, trade associations and business organizations, the media, universities, and other organizations to effectively disseminate information to hazardous waste generators countywide.

This education and outreach program will seek to change the way both industry and the public perceive the hazardous materials and waste problem. It calls for an active effort to encourage substantial changes in the way generators operate. A new program of this kind must be "sold" to all those who participate. Fortunately, there is already a high degree of recognition of hazardous waste problems among the public and among many generators. The local media, business organizations and academic institutions can assist in "getting the message out" about local government activities in waste reduction.

Dependent upon the level of available funding and staffing, an active and positive education and training component will attempt to meet the following implementation objectives:

Objective 1:

Form and utilize waste reduction advisory group to promote information exchange and dissemination and technology transfer.

Objective 2:

Prepare and disseminate industry specific information on waste reduction techniques, practices and case examples such as fact sheets, newsletters, mailings, media articles and programs, and videos.

Objective 3:

Provide information and training regarding compliance, alternative waste reduction and management strategies and available resources by responding to phone inquiries (hotline), cosponsoring seminars and technology transfer workshops.

Objective 4:

Establish procedures to publicize accurate information about waste reduction activities through the media and other channels.

Objective 5:

Provide waste reduction information to local inspectors to disseminate during existing inspections.

Objective 6:

Establish an information clearinghouse or resource library to collect, process, and distribute the latest research and literature on waste reduction assistance.

The implementation of these six sets of activities, when conducted in cooperation with other organizations, will provide opportunities for hazardous waste generators in the county to increase their level of understanding of hazardous waste and materials problems. Many generators may come to view this effort as a chance to identify opportunities to improve the safety and efficiency of their facilities while cutting down on their costs of waste management and disposal.

## Technical Assistance

Direct technical assistance to the waste generating community is at the core of a successful ongoing waste reduction program. The goal of this component is to provide direct assistance to generators, usually in small groups or on a one-on-one basis to assist them in developing and implementing a waste reduction program.

The first step for generators is to conduct a waste reduction opportunity assessment which is a systematic review of company (or public facility) processes, procedures and technologies to determine what can be done to reduce hazardous waste generation and subsequent discharges to water, air, and off-site land disposal. The assessment first explores opportunities for source reduction including process modifications, material substitutions, and improved operational practices. Next, recycling options are examined. Moving down the hierarchy of waste management practices, treatment options are evaluated for wastes that cannot be economically reduced or recycled.

Specific waste reduction assessments provide the types of information that firms need to evaluate waste reduction options and to tailor techniques to individual circumstances. Specific on-site waste assessments are important to reducing waste because of the considerable variance between manufacturing processes. This degree of variation increases as the manufacturing becomes more complex. Waste reduction assessments can be conducted internally by company personnel if a company has the internal expertise, or by consulting engineering firms. Depending on the size of the business engineering firms typically charge between \$3,000 and \$15,000 to perform a complete assessment. However, an initial assessment of a small business can range from \$1,000 to \$5,000. This investment can be attractive to many firms because the results, if implemented, can save significantly more than the cost of the initial assessment.

While the County and cities cannot provide this kind of in-depth, one-on-one assistance on an ongoing basis at this time, there are some objectives that local government can pursue to promote and assist in waste reduction planning and in the development of the capacity to perform on-site assessments of both private and public facilities, including:

Objective 7:

Prepare and disseminate examples of waste reduction plans as well as information about their utility to hazardous waste generators.

Objective 8:

Work with trade and business organizations to develop process or industry specific resource materials and workshops which focus on specific waste reduction practices, and help to develop a self-assessment capacity for small generators from a specific industry, e.g. metal platers or printed circuit board shops.

Objective 9:

Spur development of cooperative ventures to provide access to alternative waste reduction/management practices especially for small generators (e.g. centralized recycling unit for a geographic cluster of small generators that can pool their wastes).

Objective 10:

Work to develop an ongoing capacity to provide waste reduction technical assistance at the county level by training appropriate staff and providing an institutional "home" for this capability.

Objective 11:

Encourage joint industry-government and private ventures to achieve greater waste reduction.

Small quantity generators in particular, can benefit from these activities due to their special needs for information, technical assistance and access to affordable waste management and reduction opportunities.

While no "home" has yet been identified for an ongoing direct technical assistance capability, it is recommended that this capability be established in connection with an existing inspection program(s). Logical choices for this activity would include the

current MOU program, which requires the County Environmental Health Department (EHD) to conduct generator inspections; or the industrial pretreatment inspection program. Current EHD staffing and training levels as well as fiscal constraints may hinder the adoption of this capability by the EHD. Currently, the publicly owned treatment works (POTW's) are examining the need for and capability of providing a waste reduction program for all permitted industrial users. The third alternative would be to continue the Santa Clara Valley Water District Grant effort and expand it to include waste reduction technical assistance. This unit would work cooperatively with current inspection agencies' efforts.

### **Financial Assistance and Economic Incentives**

Some educational and technical assistance in waste reduction planning and practices can clearly be provided by local government. Additional technical expertise to solve more complex hazardous waste and materials problems can be "purchased" if the company has the resources to do so. In-depth waste reduction assessments cost money. Implementing the assessment recommendations may cost even more, especially if process and equipment changes must be made. Small and medium sized companies, in particular, often do not have the financial capability to absorb these costs, even if in the long run money will be saved by implementing these changes. A successful waste reduction program will provide specific information on how waste reduction programs can save money over the long (or medium) term, and how hazardous waste generators can qualify for and utilize long-term loans for this purpose. Implementation objectives for this section include the following:

#### **Objective 12:**

Utilize the newly established waste reduction advisory group to work with financial institutions to provide local access to and packaging of loans to be used for waste reduction purposes.

#### Objective 13:

Explore feasibility of and develop access to alternative waste reduction and management practices, especially for small generators (e.g. local waste exchange, chemical supplier buyback program).

#### Objective 14:

Coordinate efforts to win joint industry-government grants (from state and federal agencies and private sources) for demonstration projects.

#### Objective 15:

Collect, provide and disseminate information on the economic benefits of waste reduction investments and publicize the availability of loans and loan guarantees for waste reduction projects.

#### Objective 16:

Examine possible tax or other financial incentives which might be instituted to encourage companies to move further "up the hierarchy" of waste management practices.

All of these steps can reduce the financial barriers that exist to the planning and implementation of many waste reduction activities. It should be noted however, that many smaller firms are not fully aware of their options for handling and reducing the materials they employ and the hazardous wastes they generate, even if capital were available to them for this purpose. For financial assistance to benefit these generators, it must be instituted in conjunction with an educational outreach component.

### **Regulatory Measures**

Federal and state legislators have already adopted regulations which are intended to both encourage and force waste reduction efforts but many of these requirements have not been fully implemented (See Figure 7-1 for a listing of these requirements). The sum total of these legislative measures is to have hazardous waste generators develop and implement on-site waste reduction programs. While the 1984 RCRA Hazardous and Solid Waste Amendments and the 1985 Farr Bill (AB685) both seek

to achieve this end, Proposition 65 (passed by the voters in 1986) increases the pressure on generators to reduce or eliminate use of chemicals that are targeted by this law. In addition, SB 14 (Roberti) has been reintroduced during the 1989 California legislative session. This bill, if passed, will mandate the preparation and implementation of waste reduction plans by all generators that produce above a set level (in tons) of hazardous waste per year. While some of the above mentioned programs have not been fully implemented or enforced, Santa Clara County firms and public facilities must be prepared to meet these requirements as all generators will be phased in to state or local waste reduction planning requirements in the near future. For instance, as stated in Chapter 2, all generators in the county shall prepare a waste reduction plan as part of a local governmental approval process. This Plan will be based upon the waste reduction planning standards in SB 14. Information generated by reporting requirements which are already in existence will be incorporated as part of the County's waste management and reduction information base. Other local requirements can also be designed to promote waste reduction. For example, the requirement for waste reduction planning can also become a prerequisite to obtaining a loan for waste reduction and management projects as discussed earlier in this section.

The County shall develop model waste reduction plans for dissemination to the waste generating community. The County will develop model plans based on existing regulatory reporting forms and proposed regulatory requirements (e.g. SB 14). These model plans will include a discussion of accounting and purchasing procedures which can aid a firm in its waste reduction program. For instance, nonhazardous materials can be purchased or waste management and disposal costs can be "charged back" to the particular unit or process that generated the waste thereby clarifying which unit or process produced the waste. Waste reduction agreements with businesses that receive permits from city departments can also be utilized. This approach has worked well in Ventura County.

Other regulatory barriers to reducing hazardous waste inadvertently grow out of state and federal pollution control mandates. For example, permit requirements of the local sanitation or air district might preclude the use of certain waste reduction practices or technologies. If environmental or health protections are not compromised, the County should help industries that pursue waste reduction to receive appropriate permit variances. Inspection and permit requirements should be examined for small modifications which would encourage waste reduction efforts.

There are two other kinds of actions that the County and cities will consider to promote waste reduction through the regulatory process. First, local agencies can negotiate lower penalties in pending enforcement cases if a firm takes action to pursue aggressive waste reduction goals. The firms' or operating units' owner and/or manager can also be required to take a waste reduction training course and/or to pay fines into a County Waste Reduction Fund. Second, local agencies can establish waste reduction priorities, target ranges or goals (such as 10-40% in this Plan) and "best management practices" or standards for industry categories with phase-in periods. For instance, as the use of waste reduction techniques becomes more common and standardized, local agencies might prescribe or require particular practices for specific manufacturing processes.

In summary, the following implementation objectives are recommended in the area of regulatory measures related to waste reduction:

Objective 17:

All hazardous waste generators in the county shall prepare and implement a waste reduction plan which utilizes the hierarchy of hazardous waste management practices, and best available technology and management techniques to achieve maximum feasible waste reduction as part of a local governmental approval process.

Objective 18:

Investigate the feasibility of requiring waste reduction plans as a prerequisite to obtaining loans and loan guarantees for waste reduction projects.

Objective 19:

Reexamine existing permit programs for small modifications which would encourage waste reduction efforts.

Objective 20:

Explore options for negotiating alternative penalties and/or training requirements in pending enforcement cases.

Objective 21:

Consider the institution of fee breaks, loan priorities, extended phase-in periods for regulatory compliance, and technical assistance for firms that are actively developing and implementing waste reduction plans and programs.

Objective 22:

Encourage the adoption of targeted waste reduction priorities, standards, and goals as information on economically feasible waste reduction practices becomes available on a process or industry specific basis.

While federal and state regulations requiring waste reduction planning and program development already exist, without implementation requirements or technical and educational assistance, their impact is limited. Implementation requirements, technical assistance, and educational outreach are necessary to effectively encourage further waste reduction, especially for small generators. In combination, these components will ensure that all or most hazardous waste generators in the county are both aware of regulatory requirements as they develop, and are able to identify opportunities for reducing waste generation in their own plants.

### **Public Recognition and Information**

Public recognition is a positive and low cost way to increase attention for waste reduction achievements and opportunities. Both larger and smaller firms deserve recognition for successful waste reduction efforts. A number of states already have annual governor's award programs for businesses that have aggressively pursued hazardous waste reduction. This type of program can be an incentive for other companies to take action to reduce their waste generation. The development of the program at the local level must also be sensitive to the fact that there are companies

that may not want to publicize their use of hazardous materials in product manufacture. The following objectives should be pursued to recognize "waste reduction achievers":

Objective 23:

Present and publicize awards or certificates of recognition from the Board of Supervisors to firms with successful waste reduction programs and to firms that have aided other businesses in developing waste reduction efforts.

Objective 24:

Encourage the development of company recognition programs for employees that have implemented successful waste reduction practices in the plant.

These actions will provide positive publicity for company efforts to reduce waste and serve as an additional incentive for other companies that manage similar waste streams. Awards and letters of commendation from the County Board of Supervisors can reinforce Santa Clara County's commitment to working with industry to achieve movement "up the hazardous waste management hierarchy."

## **Data Tracking and Development**

Successful waste reduction programs, such as those in Ventura and San Diego Counties, have been implemented in combination with a data collection and assessment component. Data collection and analysis regarding local waste generation and management patterns is important to the development of a waste reduction program because it allows the County to assess generators' waste management and reduction practices, patterns and progress to determine the priorities for the waste reduction program. Because an accurate database could assist the County waste reduction effort by allowing the program to target changing priorities in a short period of time, the following objective has been established:

Objective 25:

Establish and maintain a baseline data base regarding waste reduction planning and achievement.

DHS manifest data has already been collected and analyzed during the preparation of this Plan. While current data is incomplete the volume and types of manifested waste streams and their final disposition are fairly well known quantities. However, data on waste management practices that are utilized on-site, and the waste generation and management practices of most small generators in the county are not well known at this time. Much of this data must be collected and analyzed to assist generators in their waste reduction efforts, and to monitor their progress. Action in the waste reduction area need not be deferred while waiting for a more complete information base to be developed. The availability of this information, however, will be extremely useful in developing waste reduction program activities.

Currently, the County Environmental Health Department (EHD) is expanding its capacity to collect hazardous waste generation and management data. Existing data collection efforts should be augmented by the capture of data on waste management practices. To obtain this data this Plan recommends that key information from waste reduction plans (that are submitted by new businesses as well as existing facilities) be entered into the EHD system along with MOU generator inspection information which is currently collected. Ideally, economic information about waste reduction investments should be included. Biennial generator reports (which are currently submitted to DHS) also include sections on waste reduction. This information should also be submitted to the County to help establish a baseline database regarding waste reduction planning and achievements. Funding to develop the software for this database has not been identified to date.

As of April 1989, the three major POTW's in Santa Clara County are preparing studies which will, among other things, examine their pretreatment programs and waste minimization plans. This effort will result in the generation of new information about industrial processes and their associated waste generation. This data should be made available for the establishment of the waste management database.

## HAZARDOUS WASTE MANAGEMENT/FACILITY SITING

Chapter 6 of this Plan identifies three types of actions that the County of Santa Clara will pursue in its efforts to meet the hazardous waste management needs of the county's generators while protecting public health and safety and enhancing the level of public education and confidence in hazardous waste management practices which are utilized within Santa Clara County. The three types of activities are: increased waste reduction; facilitation of the siting of needed and carefully planned hazardous waste management facilities within the county; and the signing of inter-jurisdictional agreements to gain access to waste management capacity which is available in other counties and regions. Waste reduction was the subject of the first program implementation area. This second group of implementation recommendations focuses upon the provision of needed hazardous waste management facilities (as explained in Chapter 6) and access to needed hazardous waste management capacity.

As noted in Chapter 6, it is the intention of the County and of the cities within the county to meet the needs of Santa Clara County hazardous waste generators by helping generators to reduce hazardous waste generation; by siting needed and appropriate hazardous waste management facilities for waste streams that cannot be reduced economically; and by developing and signing agreements with other jurisdictions as a means of utilizing and providing needed and available hazardous waste management capacity. As explained earlier, aggressive waste reduction will reduce some of the need for hazardous waste management capacity. Some will be met by the use of existing treatment technologies, while still others will require the use of new and evolving technologies such as transportable treatment units. An understanding of the relationship between the waste reduction program and the siting process for hazardous waste management facilities is important to the overall implementation scheme. In general, if more reduction of hazardous waste is achieved, less off-site facilities will be necessary to manage the county's waste streams. In considering the costs of a public sector waste reduction program, the

County and cities should include the costs of not having to site as many or as large-scale off-site facilities if waste reduction efforts are moderately successful. Siting costs include public resources for public review and hearings; permit processing and inspections; and especially the political costs of attempting to site a hazardous waste management facility in a specific area within the county. As discussed in earlier chapters however, hazardous waste generation will not be reduced to zero in the foreseeable future; and facility siting efforts are also influenced by liability and economic concerns. Therefore the development of a waste reduction program must be pursued in conjunction with the development of an effective program for evaluating facility siting proposals and for negotiating inter-jurisdictional agreements for waste management capacity.

Implementation activities for effective hazardous waste management in Santa Clara County will require a number of commitments from both local government and industry as well as the institution and coordination of a number of ongoing activities. These recommendations for implementation fall into three major categories: (1) facility siting; (2) the use of interjurisdictional agreements to meet the local and regional hazardous waste management needs of generators; and (3) the development of an industry-government partnership which will enhance the ability of generators to manage their hazardous wastes safely and economically.

### **Facility Siting Process**

The County's goals regarding the siting of hazardous waste management facilities include the intention to meet the need for off-site facilities, consistent with the hierarchy of hazardous waste management practices, and to participate in cooperative regional efforts to site facilities to gain access to needed facility capacity, and to require a risk assessment for inclusion in the EIR at the time of a site-specific proposal. The County and cities will evaluate siting proposals with the intention of providing permitted facility capacity for the management of wastes that cannot be reduced or eliminated within the plant or manufacturing process. The County and

cities will use the strategies of siting and of signing intercounty agreements to meet the needs of local generators as well as commitments made under such agreements. Six implementation objectives will guide the County and cities in the review of facility siting proposals:

Objective 1:

The County will plan for and work with other jurisdictions to provide needed capacity for wastes that cannot be reduced or eliminated within the plant or manufacturing process.

Objective 2:

Siting criteria and a clear local development process (as laid out in Chapter 8) will be utilized to negotiate with site developers and to evaluate proposals for hazardous waste management facilities.

Objective 3:

Hazardous waste management facilities which are sited within the county shall be designed to meet the needs of generators within the county and to meet the County's or individual cities' commitments under interjurisdictional agreements consistent with local planning criteria as determined by the local permitting authority.

Objective 4:

All proposals for hazardous waste management facilities shall be consistent with plans and policies of regional regulatory agencies (i.e. Air Quality Management District, and the Regional Water Quality Control Board) that protect air and water quality.

Objective 5:

All proposals shall be consistent with the appropriate permitting jurisdiction's General Plan, local land use permitting process, and the CHWMP.

Objective 6:

Hazardous waste management facility risk assessments required by a local jurisdiction for inclusion in an environmental impact report (EIR) must identify both acute and chronic risks to public health and safety in an understandable manner.

This set of development review policies, in combination with the procedures and siting criteria laid out in Chapter 8 will guide local governments in the evaluation of hazardous waste management facility siting proposals.

## **Interjurisdictional Agreements**

The second mechanism which will be used to provide needed hazardous waste management facility capacity is the signing of interjurisdictional agreements. As explained in Chapter 6, it is recognized that the waste streams which are generated in each county will probably not support an economically efficient hazardous waste management facility of each type needed to handle a county's waste. Therefore, the County will enter into intercounty and interjurisdictional agreements to balance economic efficiency and the size of facilities and to responsibly handle the county's "fair share" of the wastes generated. "Fair Share" means that if the County has approved the siting of a facility or facilities that have a capacity equal to or in excess of the county's total hazardous waste management needs, the county will have achieved its fair share of facility siting of additional facilities except as provided by an interjurisdictional agreement.

The siting of regionally sized facilities through such interjurisdictional agreements will require cooperation among counties in the region. Santa Clara County is committed to participation in this process:

### **Objective 7:**

The County will actively participate in negotiations with other counties in the ABAG region to develop interjurisdictional agreements regarding appropriate hazardous waste management capacity allocations.

## **Industry-Government Partnership**

During the Tanner planning process, the County has begun to build a partnership with industry groups and representatives. During this period it has become clear that a continuance of this partnership will be beneficial to both parties in the area of hazardous waste management. Four implementation objectives will provide guidance for the County in developing and maintaining an industry-public-local government partnership:

Objective 8:

The County will set up an ongoing mechanism which will be used for local government and industry to share needed information concerning hazardous waste management needs (i.e. new treatment standards for specific waste streams, permit-by-rule regulations for specific treatment practices), and which will increase the ability of all generators to reduce and manage wastes safely and economically;

Objective 9:

The County shall involve industry groups and representatives in efforts to improve the level of public understanding about hazardous waste/materials issues;

Objective 10:

The County will explore the possibility of providing needed assistance to generators in the permitting or expansion of on-site facilities for waste streams that cannot be reduced or recycled economically;

Objective 11:

The County and cities will encourage the safest and most effective use of existing and new hazardous waste management facilities by developing and providing information on the "best available management practices" and improper practices for unique waste streams such as infectious wastes or designated wastes.

The County can enhance the ability of generators to manage wastes safely and economically by pursuing the development of this partnership. This group can help to improve hazardous waste management practices in the county by, among other things, exploring ways in which the permitting process for on-site treatment (including recycling) methods can be accelerated. In addition, an ongoing mechanism for industry government information exchange on such matters as new regulations (e.g. permit-by-rule guidelines), new hazardous waste reduction and management technologies and practices, the status of regional and out-of-region facility siting proposals, and waste management facility needs assessments will be extremely beneficial to both parties during implementation of the Tanner Plan. Finally, industry participation in public education efforts is important to achieving the objective of improving the level of public understanding about hazardous waste management issues.

## **PUBLIC EDUCATION AND INVOLVEMENT**

Hazardous waste management planning and implementation in Santa Clara County will include and encourage opportunities for public involvement and education. Public understanding of hazardous waste management issues and involvement in the decision making process which is described in this Plan, is an important component necessary to the resolution of hazardous waste and materials concerns in Santa Clara County. Without public support, the programs which are recommended in this Plan cannot be implemented effectively. Three major objectives form the framework for all activities in this area:

### **Objective 1:**

The County and the cities shall coordinate the development of a program for the proper management and disposal of household hazardous waste on a countywide basis in accordance with the waste management hierarchy and considering existing programs and conditions.

### **Objective 2:**

The County, in coordination with the cities, shall initiate a public education campaign which will inform all county residents about the potential hazards associated with household products, how to dispose of them safely, and safe substitute products and practices that can be used in place of some household hazardous substances.

### **Objective 3:**

The County, in coordination with the cities and industry, shall engage in direct public education efforts concerning hazardous waste reduction and management such as workshops, utilization of the media, school programs, and information dissemination.

## **Household Hazardous Waste Program**

The development of a household hazardous waste (HHW) management program warrants special discussion because it will provide an opportunity for active public participation in improved hazardous waste management practices. In participating in a HHW program citizens have the chance to reduce and properly manage their

own waste while they learn about the overall area of hazardous substances and wastes. As discussed in Chapter 4, improper methods of handling and disposing of these substances can cause damage to municipal landfills and to the environment, as well as injuries and damage to refuse workers and to general public health. While recent legislation and publicized information has made the general public somewhat more aware of the potential hazards associated with the improper handling of many household products, many residents are not aware of these impacts. Simultaneously, those residents who are aware of the potential dangers of household hazardous substances and wastes are often frustrated by the lack of convenient, safe, and inexpensive means available to them for HHW collection and disposal.

During the development of this Plan, the County has identified the need for countywide coordination in the area of HHW education and management. To assist in this coordination, county Tanner staff organized and convened a HHW working group beginning in the summer of 1988. The group is comprised of city and county staff involved in conducting HHW programs and private hazardous and solid waste contractors. The overall goal of this group is to "develop and gain support for HHW education and management activities which, in the overall interest of residents countywide, meet the needs of residents for HHW services on a phased basis (i.e. in stages) as funding is identified". This group is working with county Tanner staff to develop a proposal for such a program for the management of HHW on a countywide basis. The proposal will be submitted to the Intergovernmental Council in Fall, 1989.

A program which will reduce and manage effectively the HHW stream will require (1) a public education and awareness program which will educate residents to use nonhazardous substitutes when possible and to encourage product development which does not result in HHW; (2) ongoing and convenient collection and/or disposal opportunities; (3) an emphasis on recycling and treatment of components of the HHW stream thereby reducing the amount of waste which will be sent to

landfills; (4) training of public agency employees who answer questions about HHW so that they can help to educate the public about non or less hazardous practices and products; and (5) development and support for legislation (e.g. labelling and pricing) which encourages the manufacture of less or nonhazardous products as well as the increased recycling of hazardous household substances and wastes.

Existing county staff are developing the program proposal, but the provision of service and education to a broader spectrum of the county's population will require additional commitments of staff and operating budget. Some activities, such as the development of educational materials, can be pursued on a multijurisdictional or regional basis to provide a more cost effective program. Household hazardous waste collection events are costly (\$12,000 - 100,000 for a two-day collection), and some of these costs may increase as untreated hazardous wastes are banned from land disposal. The development of a long-term management system for household wastes should include access to ongoing collection or disposal opportunities; an emphasis on recycling of used oil and paints; and the development of an intense public education campaign as the basis for an ongoing effort to reduce the use of hazardous substances and to manage safely those materials that continue to be utilized. Funding mechanisms for HHW collection and education programs should spread the cost among a large number of residents as this type of program can ultimately become available to all county residents.

## **Public Education**

Public understanding of the need for improved hazardous waste and materials management can only develop through the implementation of educational efforts. An outreach program can increase the public's knowledge and awareness of hazardous waste management issues by utilizing the following methods: workshops, community and school programs, and pilot projects; written articles and brochures; exposure to media stories and information centers; participation in other information and outreach campaigns; and in the public review process for

evaluating proposals to site new hazardous waste management facilities in Santa Clara County.

These kinds of activities will require coordination between local government and the public through environmental, civic, neighborhood and educational organizations. Funding for these activities may come from a number of different sources. Time can be donated by knowledgeable individuals who have served on Tanner Committees and by volunteers from local organizations or industry to develop education materials and meetings and to distribute information. Some opportunities for public participation can be provided and funded from existing sources. Continued workshops and outreach in this area will require either ongoing volunteer support or additional staffing and materials which can be provided through community foundations, industry associations, public interest groups, and city and county governments. Funding options include foundation or state grants, other local grants, landfill tipping or user fees, or a utility bill surcharge. Educational efforts can also be provided, sponsored, or cosponsored by educational institutions, such as elementary schools, high schools and university programs.

## **PROGRAM COORDINATION AND COMPLIANCE WITH REGULATORY REQUIREMENTS**

In 1987, the County and city agencies signed a letter of agreement to coordinate city and county hazardous materials and waste activities (See Appendix XI-A City-County Agreement). The agreement provided for a review of mutual responsibilities in hazardous materials management and a reassessment of the need for program coordination and mutual support. It also laid out the program responsibilities of each party that signed the agreement. This document should be reassessed periodically and amendments may be made by mutual consent of the parties at any time. Pending adoption of the CHWMP, the City-County agreement takes on even greater importance. This is due to the fact that activities related to the

City-County agreement shall now consider the current status of regulatory programs related to hazardous materials and wastes in light of CHWMP objectives.

Another aspect of program coordination is the need for a model implementing ordinance which will provide for uniform implementation of Plan policies, enforcement, and strategies. The objectives for this fourth set of CHWMP implementation steps focus on actions which will be taken for Plan adoption to enhance regulatory compliance, and to improve information sharing and dissemination between local government agencies, as well as between local government, industry, and other levels of government.

### **Enhanced Regulatory Compliance**

The City-County Hazmat Agreement already identifies a number of actions that are consistent with CHWMP objectives. One major focus of both the Agreement and this Plan is to aid the implementation of existing regulatory programs such as the Hazardous Materials Storage Ordinance (HMSO) program; Underground Storage Tank (UST) regulation; the hazardous waste generator MOU; Waters and La Follette programs; and industrial pretreatment programs. Simultaneously, the second focus of this Plan is clearly to encourage aggressive efforts to reduce hazardous waste generation. A number of objectives should be pursued which can lead to enhanced regulatory compliance:

#### **Objective 1:**

Maintain, strengthen, and update the City-County Hazmat Agreement to coordinate efforts of all local hazardous materials and waste management programs.

#### **Objective 2:**

Utilize a multimedia approach to regulatory and educational program development; e.g. Create task force to examine means to utilize multimedia approach to minimize undue duplication of inspection efforts.

### Objective 3:

Cross-train regulatory program inspectors so that they can recognize fundamental violations involving all media (e.g. air, water, and land).

### Objective 4:

Build incentives for waste reduction and proper waste management into hazardous materials and waste programs and program fee structures.

### Objective 5:

Consider the development of and offer of a waste management/reduction training course as an alternative (or partial alternative) to enforcement fines for first-time violators of municipal codes and regulatory requirements.

### Objective 6:

Require that facilities submit a waste reduction/management plan as part of the local government approval process, and that they perform internal reviews of their hazardous waste and materials practices to identify opportunities for reducing waste generation.

### Objective 7:

Enhance public facilities' compliance by promoting internal review of waste management practices and providing appropriate facility assessment guidelines and technical assistance/resources.

The City-County Agreement recommends the examination of existing hazardous materials and waste program fee structures to avoid confusion and duplication. It is also recommended in this Plan that fee structures be explored for ways to build in incentives to reduce the use of hazardous materials and the generation of hazardous waste. Some options to achieve this objective would be to set a lower fee, offer a rebate, or forgive a portion of the fee for a reduction in volume or toxicity of hazardous waste generated. Alternatively, a portion of the fee could be channeled toward the provision of waste reduction assistance or information. This strategy should be explored for its application to sewer hookups and permitting; hazardous materials storage permitting; fire inspections; and National Pollutant Discharge Elimination System (NPDES) permits. Other recommended activities which can result in enhanced regulatory compliance for hazardous waste generators include: cross-training of inspectors to produce an understanding of violations involving all



media (e.g. air, water, land); and the provision of a waste management/reduction practices training course as an alternative to enforcement fines for first-time violators of municipal codes. Both of these activities can lead to increased opportunities for education of both generators and inspectors, and improved waste management practices.

Both commercial and industrial generators, as well as public agencies can benefit from facility assessments of waste management practices and the preparation of waste reduction plans. New sources of hazardous waste generation are better able to build in innovative practices as opposed to existing plants which sometimes require major capital expenditures for the retrofit of an existing manufacturing environment. Model Plans should be provided to existing facilities and to public agencies as part of an education and technical assistance program.

Finally, this section emphasizes the use of a multimedia approach to hazardous waste management in the development of all programs. For example, a waste management technique can ultimately result in a decrease of waste flows to the Bay yet increase the level of toxic pollutants being emitted into the air. In this case neither real reduction in emissions or enhanced regulatory compliance has been achieved. All activities in hazardous materials and waste management should be guided by multimedia concerns.

### **Information Sharing and Dissemination**

During the development of this Plan, the county toxics staff relied upon data taken from DHS records, DHS's "no survey method", data from other existing programs, local surveys, and some extrapolation from partial data sources. Further research and sharing of information could fill in many of the data gaps which now exist in the County's Plan for effective toxics management. Later revisions of this Plan, as well as efforts to increase regulatory compliance, will benefit from improved

County should identify small quantity generators and their locations in the county. A preponderance of small generators in a particular area can facilitate the development of alternative waste management practices for those generators. For example, if a number of small generators of plating wastes are located in a small geographic area, a private contractor might be able to pool their wastes for a particular transportable treatment process, thus increasing the economic efficiency of this waste management technique.

Two final recommendations in this section concern legislative tracking and the provision of progress reports on hazardous waste/materials programs. The County should improve its tracking of state and federal toxics legislation. This subject area is very dynamic and requires vigilant oversight to track important developments. Finally, the City-County Hazmat Agreement calls for an annual report on the status of toxics programs within the county. The overall CHWMP and progress toward meeting the objectives outlined in this implementation program would also benefit from an annual report on progress toward CHWMP objectives. These two efforts will provide a comprehensive view of progress in hazardous waste and materials management in Santa Clara County.

## **TANNER PLAN IMPLEMENTATION MATRIX**

The following matrix identifies all of the Plan implementation objectives discussed in this chapter. Each objective is accompanied by associated activities, a recommended implementing agency(s), ideal starting date, funding source, and estimated costs. Starting dates for various activities will be influenced by acceptance of a proposed formula for funding Tanner implementation which is requested to begin in fiscal year 1990-91.

**SECTION B: WASTE REDUCTION: Educational Outreach**

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
WR-1. Information exchange, technology transfer	Form and utilize advisory group	County Hazardous Waste Unit (HWU)	May 1, 1989	SCVWD Grant for 12 months	\$2,500
WR-2. Disseminate industry-specific information	Fact sheets, case examples, articles, media	County HWU	Fall, 1989	SCVWD Grant	\$10,000
WR-3. Provide information and training to generators	Workshops, referral network	County HWU	Summer, 1989	SCVWD Grant	\$7,500
WR-4. Work with media	Press releases, interviews, articles	County HWU	Ongoing	SCVWD Grant	\$1,500
WR-5. Provide information to regulatory inspectors	Develop educational materials to distribute during inspections		By Fall, 1989	SCVWD Grant	\$4,500
WR-6. Develop resource library	Order and organize resource materials	County in cooperation with DHS, EPA Region 9	Summer, 1989		\$1,000

**SECTION B: WASTE REDUCTION: Technical Assistance**

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
WR-7. Prepare/distribute model waste reduction plan		County HWU, State DHS	Summer, 1989	SCVWD Grant	\$10,000
WR-8/11 Encourage industry-government and private ventures to achieve greater waste reduction	Develop process & industry specific workshops, technical information  Work with trade/business organizations	County HWU, related departments	May 1, 1989  May 1, 1989	SCVWD Grant	\$16,000
WR-9. Identify small generator needs and options	Develop access to SQG alternative waste management practices	County HWU, related departments		SCVWD Grant	\$15,000
WR-10. Provide trained staff and "home" for waste reduction program	Convene interagency meetings in effort to establish ongoing program	Board of Supervisors, County Executive	Fall, 1989	County staff	

**SECTION B: WASTE REDUCTION: Financial Assistance/Economic Incentives**

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
WR-12. Work with financial institutions	Package and publicize waste reduction loans	County HWU	May 1, 1989	SCVWD Grant for 12 months	\$10,000
WR-13. Develop access to practices with potential economic benefits	e.g. Local waste exchange, chemical supplier buy-back program	County HWU	May 1, 1989	SCVWD Grant	\$10,000
WR-14. Encourage/coordinate efforts to win industry-government grants	Demonstration projects	County departments, cities	Ongoing	SCVWD Grant	\$1,000
WR-15. Disseminate information on economic benefits of waste reduction	Prepare and disseminate materials	County HWU	May 1, 1989	SCVWD Grant	Part of Educational Outreach
WR-16/21. Examine possible special incentives for implementing waste reduction programs	e.g. financial incentives (reduced fee structures, loan priorities), phased-in compliance periods, technical assistance, etc.	County HWU, related County & city agencies	Ongoing	SCVWD Grant	\$2,500

## SECTION B: WASTE REDUCTION: Regulatory Measures

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
WR-17. Adopt waste reduction plan requirement	Develop plan submission and review process	County HWU, EHD, cities, Fire, POTW's, DHS	Upon Plan approval	Pending adoption of proposed funding formula	\$100,000 See Note 1.
	Develop ordinance	County Counsel, City Attorneys, City Planning Departments, County departments,	Upon Plan approval	Local Staff	\$25,000 estimate
WR-18. Investigate other waste reduction plan requirements	e.g. as special loan prerequisite	DHS, County HWU	May 1, 1989	SCVWD Grant	\$1,000
WR-19. Examine existing permit programs for ways to encourage waste reduction	Review inspection forms, possible fee breaks, loan priorities, etc.	IGC, County HWU, EHD, POTW's, Fire, Cities	Fall, 1989	SCVWD Grant	\$6,500
WR-20. Formulate/negotiate alternative penalties for certain enforcement cases	Meet with enforcement agencies to discuss alternative enforcement options	County HWU, District Attorney, POTW's, EHD, Fire, UC Extension	Winter, 1989	SCVWD Grant	\$2,500
	Develop waste reduction training course	County HWU	Winter, 1989	SCVWD Grant	\$7,500

**SECTION B: WASTE REDUCTION:***Regulatory Measures continued*

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
WR-22. Adopt industry-specific waste reduction standards/goals on industry-specific basis	Examine and disseminate information on standards/goals as become available	County HWU as lead unit	Ongoing	SCVWD Grant for one year; ongoing pending adoption of proposed funding formula	\$3,500

**SECTION B: WASTE REDUCTION: *Public Recognition***

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
WR-23. Recognize "waste reduction achievers"	Board of Supervisors Award, certificates	County HWU as lead unit	May 1, 1989	SCVWD Grant	\$3,000
WR-24. Encourage company recognition programs	Initiate development of employee recognition programs	County HWU	May 1, 1989	SCVWD Grant	\$1,000

**SECTION B: WASTE REDUCTION: Data Tracking and Development**

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
WR-25. Establish & maintain baseline hazardous waste reduction achievement data-base	Setup database	County HWU, EHD, Data Processing	Summer, 1989	Pending	\$50,000
	Improve and update data base on ongoing basis: Input waste reduction plan information as available;biennial report information		Ongoing	Pending	\$25,000

**SECTION C: HAZARDOUS WASTE MANAGEMENT/FACILITY SITING: Facility Siting**

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
HWM-1. Provide facility capacity	Utilize development review process to evaluate siting proposals	Local land-use agencies, County HWU	Upon Plan approval as needed	Permit fee paid by applicant	Locally determined
HWM-2. Negotiate with site developers	Evaluate proposals with development review, goals and policies, siting criteria	Local land-use agencies, Local Assessment Committee	As needed	Applicant permit fee	Locally determined
HWM-3. Size facilities to meet fair share and agreement commitments	Evaluate proposals based on this principle	Local land-use agencies	Ongoing	Local jurisdiction	Locally determined
HWM-4. Consistency with air and water requirements		Local land-use agencies, County HWU, regional agencies	Ongoing	Local jurisdiction	Locally determined
HWM-5. Consistency with General Plan and CHWMP		Local land-use agencies	Ongoing	Local jurisdiction	Locally determined
HWM-6. Risk assessment requirement for siting proposals	Evaluate understandable assessment as part of review	Local land-use agency	As needed	Applicant	Depends upon project

# SECTION C: HAZARDOUS WASTE MANAGEMENT/FACILITY SITING:Interjurisdictional Agreements

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
HWM-7. Develop/ utilize interjurisdictional agreements	Participate in negotiations with ABAG & regional counties to determine appropriate facility capacity allocations	County HWU, CSAC, ABAG, Other counties, Cities	In progress	Pending	\$10,000

## SECTION C: HAZARDOUS WASTE MANAGEMENT/FACILITY SITING: Industry-Government Partnership

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
HWM-8. Industry-government information sharing	Establish mechanism for information-sharing	County HWU	Summer, 1989	SCVWD Grant	\$2,500
HWM-9. Gain industry participation to increase public understanding	Publicize waste reduction-facility siting connection	County HWU	May 1, 1989	SCVWD Grant	\$1,000
HWM-10. On-site permitting assistance	Research permitting process for possible role for local govt.	County HWU	Fall, 1989	SCVWD Grant	\$6,000
HWM-11. Develop "best available management practices" policies for unique wastes	Education of generators regarding management practices for unique wastes	County EHD, cities	In progress	Local staff	Local cost

SECTION D: PUBLIC EDUCATION AND INVOLVEMENT: Household Hazardous Waste Program

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
PE-1. Coordinate development of countywide HHW mgmt. program proposal	Ongoing collection proposal to IGC	County HWU, Cities	Proposal in progress; To IGC in Fall, 1989	SCVWD Grant Pending adoption of separate HHW funding proposal	\$5,000
	Emphasize recycling  Legislative support/tracking				\$5,000
PE-2. Initiate HHW public education campaign	Educate residents/local government staff	County HWU, cities, Chambers of Commerce	In progress	Grants, local staff	\$25,000
	Countywide coordination				
	Informational materials: schools and retail outlets, government staff, calendar of events				
	Hotline				
	Designate SCC HHW month				

**SECTION D: PUBLIC EDUCATION AND INVOLVEMENT: *Public Education***

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
PE-3. Engage in direct public education/ outreach program	Develop and disseminate information  e.g. Community workshops, School programs, Written articles and brochures, Pilot projects	County HWU, cities, community service organizations	Ongoing	Local staff	Local cost
	Participate in other cosponsored activities that will improve public understanding of issues and solutions	Cities, Counties, HWU	Ongoing	Local staff	Local cost

**SECTION E: PROGRAM COORDINATION AND REGULATORY COMPLIANCE: City-County Hazmat Agreement**

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
PC-1. Maintain and strengthen City-County hazmat agreement	<p>Assess in light of CHWMP objectives</p> <p>Gain agreements to enhance regulatory compliance</p> <p>Evaluate progress achieved and tasks remaining</p>	IGC Environmental Safety Committee, EHD, Fire, County Counsel, City Attorneys, County HWU	Ongoing	Local staff	Local cost

# SECTION E: PROGRAM COORDINATION AND REGULATORY COMPLIANCE: Enhanced Regulatory Compliance

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
PC-2. Emphasize and utilize multi-media approach	Ensure ongoing communication with air/water agencies	County HWU, EHD, POTW's, BAAQMD, Fire, RWQCB	Ongoing	Pending	\$1,500
PC-3. Examine use of multimedia approach for inspection efforts	Analyze staff training levels and needs	County HWU, EHD, POTW's, Fire, UC Extension	Ongoing	SCVWD Grant	\$2,500
	Cross-train inspectors (multi-media compliance & waste reduction)	County EHD, POTW's, Fire/ Hazmat officers, County HWU		Agency training budgets	40 hours training per inspector
PC-4/9. Build incentives into & avoid duplication of requirements of local programs	Examine city & county hazardous materials/waste programs & program fee structures.	County EHD, POTW's, Fire/ Hazmat officers, County HWU	Ongoing	Pending	\$ 5,000
	Develop model (multi-agency) hazardous materials/waste reporting/registration form.		Summer 1990	Pending	\$ 5,000

Local cost

SECTION E: PROGRAM COORDINATION AND REGULATORY COMPLIANCE: Enhanced Regulatory Compliance continued

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
PC-5. Offer/require waste reduction training course	Develop training course/gain support for use as a selective enforcement option.	County DA, HWU, EHD, POTW, Hazmat, DHS	Summer 1989	Environmental Crimes Fines/Settlements	\$ 2,500
PC-6. New facilities waste reduction planning	Develop ordinance Incorporate into land-use permitting Establish process for submission & review	County	Summer 1990		\$ 5,500
PC-7. Enhance public facilities' compliance	Internal review of waste management practices Provide assesment guidelines, technical assistance & resources.	County agencies, Cities	Summer, 1989	Local jurisdictions	
PC-8. Incorporate CHWMP into City General Plans	Develop model ordinance	County HWU	Completed		

**SECTION E: PROGRAM COORDINATION AND REGULATORY COMPLIANCE: Information-Sharing and Dissemination**

IMPLEMENTATION OBJECTIVES	PROGRAM/ACTIVITY	POTENTIAL IMPLEMENTING AGENCY	IDEAL STARTING DATE	POSSIBLE FUNDING SOURCES	ESTIMATED COSTS
PC-10. Improve coordination of and access to data	Discuss interagency use of data; track facility siting proposals  Evaluate/monitor new sources of data/information as becomes available	County HWU, EHD, POTW's, Fire, DHS	Summer, 1989	Pending	Local cost
PC-11. Annual progress reports	Evaluate progress towards achieving plan objectives	County HWU & Cities	Summer, 1990	Pending	
PC-12. Improve legislative tracking	Inform cities of important developments; provide periodic summaries to IGC, Cities, County staff	County Relations, County HWU, Cities to discuss	In progress	Local staff	Local cost
PC-13. Provide CHWMP updates	Address progress of agreements, data, industry changes, siting criteria, capacity, waste reduction  Determine frequency and content	County HWU	August 1, 1992 and every 3 years or as appropriate	Pending adoption of proposed funding formula	\$100,000 total

## CHAPTER 12

### ENVIRONMENTAL IMPACT REPORT

#### 12-1 Preface

This chapter contains the Environmental Impact Report for the Santa Clara County Hazardous Waste Management Plan (HWMP), as prepared to meet the requirements of the California Environmental Quality Act (CEQA). This EIR is a substantial revision to a DEIR previously circulated for public comment during the summer of 1988. That DEIR was for a draft HWMP that has been changed substantially in the present document. Because both the content of the HWMP and its policies have changed so greatly, it was believed appropriate to recirculate a DEIR for public comment that more accurately and clearly evaluates the HWMP as now proposed.

In recognition of the substantial overlap of information between the HWMP and the EIR, this environmental document has been integrated into the Hazardous Waste Management Plan. CEQA Guidelines provide for EIRs to be included in General Plans (Section 15166), or elements thereof, if the document addresses all of the content requirements of an EIR and includes a special section identifying the parts of the General Plan document that cover the appropriate CEQA topics. The HWMP is to be adopted as the County General Plan - Hazardous Waste Element. Integration of the contents avoids redundancy in the preparation of the documents. Section 12.2 of this chapter provides a list of the required contents of a Draft EIR and the corresponding sections in the HWMP. The annotation of that list serves as an index to where in the Plan discussion of each of the required elements can be located.

CEQA also recognizes that an EIR on an element of a General Plan need not be as specific as the EIR associated with a proposed project but rather can provide more of an overview. The information presented is intended to provide such an overview of the environmental impacts associated with the operation of facilities which handle, store, treat, or dispose of hazardous wastes.

This EIR is being prepared as a Program EIR, as described in Section 15168 of the CEQA Guidelines. This approach provides some advantages to the county of Santa Clara. It allows for the consideration of the broad environmental impacts of the county's HWMP, including cumulative impacts (necessary for Board of Supervisors approval of the HWMP itself), and it provides a basis for analyzing specific programs and sit-specific projects in the future, by "tiering" (CEQA Guidelines, Section 15385) these onto the program EIR. This EIR, then, provides both a basis and a blueprint for the preparation later of site-specific EIRs on proposed hazardous waste treatment, storage and disposal (TSD) facilities in the county.

An EIR for any specific hazardous waste management project would have details regarding all locational and operational aspects of the proposed facility. The information presented here is intended to assist developers, local agency, city and county staffs, and decisionmakers in better understanding the scope of issues and questions that a project-specific EIR should address. The discussion of projected hazardous waste generation and means of managing that waste are found in Chapter 5 and 6 of the HWMP, while Section 12.8 of this chapter contains a discussion of the impacts and mitigations associated with these facilities.

## 12-2 Contents of the Draft EIR on the Hazardous Waste Management Plan (HWMP)

The following Table of Contents (Table 12.1) lists the required contents of a Draft EIR on a General Plan element as enumerated in the California Environmental Quality Act [CEQA] Guidelines. The page heading indicates where in the DEIR, the Hazardous Waste Management Plan [HWMP], or elsewhere the indicated item may be found.

**Table 12.1 Table of Contents**

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## 12-3 Summary

### The Propose Hazardous Waste Management Plan

The proposed County HWMP assumes that Santa Clara County achieves a 40% reduction in the amount of hazardous waste projected to be produced in the county by 2000. Existing on-site and off-site facilities are expanded and modernized as planned. Programs to promote waste minimization are identified and funded to enable large and small quantity generators achieve substantial regulatory compliance and greater awareness of the opportunities for and benefits from waste reduction efforts. Currently proposed on-site facilities are constructed and permitted to operate. Off-site facilities needed to treat and manage county-generated wastes (which cannot be reduced or recycled) are sited, built and permitted to operate.

### Areas of Controversy

As proposed in the original HWMP, there was some controversy regarding the potential impact of siting residuals repositories in industrial areas within cities and in critical watershed areas in the unincorporated county. It is believed the HWMP as now proposed with its siting criteria for the location of any hazardous waste facility, including residuals repositories, goes a substantial way toward reducing that controversy.

In this regard it should be emphasized that the siting criteria distinguishes between residual repositories and other types of hazardous waste facilities. More restriction siting and performance criteria are imposed on residual repositories because they present a potentially greater risk to the community and the environment. In contrast, many of the risks associated with other facilities can be mitigated to a large degree through siting factors and performances standards.

### Project Alternatives

**No Project** - Facilities would need to be available outside Santa Clara County to treat, store and dispose of Santa Clara County's hazardous waste. No locality in the county would be subject to the impacts resulting from expansion of existing facilities or siting of new hazardous waste facilities. There would be no formal program for waste reduction, no generator assistance, inadequate enforcement of disposal regulation and steeply rising costs to export waste for treatment and disposal. The situation could cause a significant rise in the illegal storage and disposal of hazardous waste, with significant impacts on public health, safety, and the environment.

**Minimum Waste Reduction** - This alternative assumes that Santa Clara County achieves waste reduction levels no greater than 10%, the minimum level identified in the HWMP. This assumption implies that hazardous waste source reduction makes little progress, and there is only minimal development of on-site product substitution, re-use, recycling, or treatment. Waste reduction progress among the county's estimated 5,000 SQGs and its households is minimal. The reasons for the failure of the county's waste reduction program to achieve more than minimum results would most likely be a lack of funding, training, and personnel. Sufficient off-site facilities are developed or expanded to meet the county's needs. Residuals are exported; some hazardous wastes are imported.

**Maximum Facility Development** - This alternative also assumes that only a 10% reduction in hazardous waste is achieved (although greater reductions would be possible). Neither hazardous wastes nor residuals are exported from Santa Clara County. At least one large residuals repository and a large incinerator are sited, built and operated in the county. There are sufficient off-site facilities to treat, store and dispose of all of the county's hazardous waste and to treat an increased supply of the types of wastes currently imported into the county for treatment or recycling. This

alternative implies that Santa Clara County would decide to become a hazardous waste treatment center perhaps to obtain revenue to finance its waste reduction programs and related services.

### **Significant Impacts which can be Reduced to a less than Significant Level**

With implementation of the recommended mitigation measures, the County as a whole will experience no significant adverse impact from implementation of the HWMP. With (1) implementation of the policies and siting criteria described in this HWMP, (2) Federal, State, and regional regulations regarding hazardous waste and (3) the local land use policies and regulations regarding hazardous waste and emergency response, any potentially significant impacts should be reduced to a less than significant level.

#### Impact

#### Mitigation

#### ***Land Use***

- |  |  |
|--|--|
| <ol style="list-style-type: none"><li>1. Some hazardous waste facilities might be located near incompatible land uses.</li></ol> | <ol style="list-style-type: none"><li>1. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment.</li><li>2. A sufficient number of potential siting areas of sufficient size must be made available to meet the facility needs of Santa Clara County. The county's HWMP has identified a large number of potential siting areas within industrial zones in eleven Santa Clara County cities.</li><li>3. Facility siting must take into account both actual and potential industrial and non-industrial land uses surrounding the site. Buffer zones can provide protection for residential and other non-industrial land uses. Additional engineering or natural separation may be required as part of the land use permit.</li><li>4. Incorporation of new hazardous waste reduction equipment into existing installations and its operation must comply with the Uniform Building and Fire Codes and the local hazardous waste ordinance.</li></ol> |
|--|--|

### Impact

2. Location of Hazardous Waste facilities next to residential development could affect property values negatively.
3. The greater the distance between treatment, storage and disposal hazardous waste facilities and sources of waste generation, the greater will be the risk of transport accidents or spills that might effect land uses along the route. Long hauling distances to facilities could increase treatment costs, inducing some generators to use unsafe or less effective disposal systems which may effect nearby land uses.

### Mitigation

5. Refer to Mitigations number 1, 3, and 4 above.
6. If a proposed facility's possible negative effect on property values becomes an issue, the county or the Local Assessment Committee (LAC) could require a proponent to fund an independent study of the project's impact on housing values.
7. Compliance with the policies of the HWMP regarding handling and transport of hazardous wastes in Chapter 9.

### ***Flora and Fauna***

1. Siting of hazardous waste facilities in certain areas could conceivably impact the habitat of rare or endangered plant or animal species.
2. Biological contaminants could be released into the air or water during an accident or deliberate release and spread to areas supporting rare, threatened and endangered species.

1. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety).
2. The exclusionary criteria discussed in Chapter 8 should protect critical habitat and wetlands.
3. Design facilities so that accidental spills or emissions would be contained on the project site.
4. Refer to mitigation 1 and 2 above.
5. Enforce existing laws regarding handling of hazardous waste, including the prosecution of illegal waste disposal.
6. Implement the County's emergency response plan in the case of illegal or accidental emissions or spills.

### Impacts

3. Accidents involving improper or illegal transport of hazardous wastes could effect natural areas or the habitat of rare or endangered species.

### Mitigations

7. Refer to mitigation 5 and 6 above.
8. Compliance with the policies of the HWMP regarding handling and transport of hazardous wastes in Chapter 9.

### *Hydrology and Water Quality*

1. Discharge of liquid or solid hazardous waste could degrade the water quality of surface water bodies or contaminate groundwater through soil percolation.

1. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety).
2. Prepare site-specific EIR where impacts may be significant.
3. Install impervious surfaces and berms in waste reduction facilities where hazardous wastes are handled and stored to isolate from surface/groundwater. Direct all storm runoff from contained areas to impervious storage area with 100 year storm capacity. Test and treat stored runoff if necessary to protect water quality.
4. Long-term improvement in county surface and groundwater quality through reduction of improper hazardous waste disposal.
5. To reduce the potential for contamination of wetlands, U.S. Army COE criteria should be applied to determine the extent of wetlands near proposed sites for facilities. Facilities should be located outside wetlands with a buffer zone width to be determined on a case-by-case basis.
6. To prevent contamination of aquifers, hazardous waste facilities should be located outside high-priority groundwater protection zones.

### Impacts

2. Project facilities could potentially suffer damage if subject to flood hazards resulting from levee failure, stream flooding or dam failure.
3. Should an accident occur during transport, release of hazardous waste to the environment could result. Possible effects include contamination of surface water bodies, including reservoirs and streams, or infiltration into the soil, contaminating soil and ground water.

### ***Transportation***

1. Traffic congestion in the vicinity of new hazardous waste facilities might increase.

### Mitigations

7. To minimize the potential for flooding hazards an investigation to determine the 100-year flood level should be conducted. Areas possibly subject to inundation in the case of dam failure should be determined.
8. To minimize the potential for flooding hazards, the 100-year high tide level along San Francisco Bay should be determined.
9. To provide adequate drainage, portions of a facility not used for handling or storage of hazardous waste should be connected to municipal storm drains.
10. Refer to mitigations numbers 1, 2, and 3 above.
11. Comply with the HWMP policies relating to transportation described in Chapter 9.
12. Implement the policies of the HWMP supporting the establishment of an effective source reduction program in order to minimize the amount of hazardous waste that must be transported by generators for treatment, storage and disposal.

1. Implementation of Santa Clara County's HWMP should have a generally beneficial effect from a transportation perspective. The successful implementation of source reduction programs should reduce the number of transport trips involving hazardous waste.
2. Facility construction planning should include measures to mitigate impacts to local traffic and transportation around the construction site.

## Impacts

## Mitigations

### *Geology and Soils*

- |  |   |
|--|---|
| <ol style="list-style-type: none"><li>1. Strong groundshaking would effect hazardous waste facilities in the event of an earthquake.</li><br/><br/><br/><br/><br/><br/><br/><br/><br/><br/><li>2. Substantial earth movement would be required to construct containments dikes and berms, foundations and storage ponds for the various types of facilities. Substantial grading could also be required for site preparation in areas of poor or unsuitable soil conditions.</li></ol> | <ol style="list-style-type: none"><li>3. Prepare site-specific EIR where impacts may be significant.</li><br/><li>4. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment .</li><br/><br/><br/><br/><br/><br/><br/><br/><br/><br/><li>1. To reduce geologic hazards in areas of potential impact to proposed facilities, a geotechnical investigation should be undertaken by a California-registered geologist or engineering geologist for proposed facility sites.</li><br/><li>2. To minimize the potential for these seismic effects, hazardous waste facilities could be designed and constructed to withstand earthquake damage.</li><br/><li>3. Comply with the County Hazardous Materials Storage Ordinance requirements regarding containment that would minimize spills due to seismic activity.</li><br/><li>4. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment.</li><br/><li>5. To prevent damage to facilities from poor soil conditions, a soils report should be prepared by a California-licensed civil engineer prior to construction of any facility. Geotechnical investigations for each specific facility should analyze the stability of hillside areas, if necessary, at that proposed site. To minimize soil erosion during construction, an erosion control plan should be prepared by a registered civil engineer for all proposed facility construction.</li></ol> |
|--|---|

## Impacts

## Mitigations

### *Climate and Air Quality*

- |  |  |
|--|--|
| <ol style="list-style-type: none"><li>1. Hazardous waste facilities would generate emissions of criteria pollutants directly from operations and indirectly through transportation sources (automobiles and hazardous waste transport trucks).</li><br/><br/><br/><br/><br/><br/><br/><br/><br/><br/><li>2. Emissions of air pollutants during construction of hazardous waste facilities would result primarily from dust generated from earth moving, excavation, and other construction activities.</li></ol> | <ol style="list-style-type: none"><li>1. Prepare site-specific EIR where impacts may be significant.</li><li>2. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment.</li><li>3. The BAAQMD would determine, on a case-by-case basis, the need for modeling of emission concentrations of criteria/non-criteria pollutants.</li><li>4. As required in the HWMP, develop a waste reduction plan consistent with the priorities expressed by the Hazardous Waste Management Hierarchy.</li><li>5. Developers shall provide BACT and TBACT for criteria and toxic pollutants.</li><li>6. Emission offsets may be required by the BAAQMD. Specific offset actions may be determined on a case-by-case basis.</li><li>7. Comply with the HWMP policies relating to transportation described in Chapter 9.</li><li>8. Refer to mitigations 1,2,3,4 and 5 above.</li></ol> |
|--|--|

### *Noise, Light, Glare, and Shadowing*

- |  |   |
|--|---|
| <ol style="list-style-type: none"><li>1. On-site equipment could cause noise and vibration problems.</li></ol> | <ol style="list-style-type: none"><li>1. Prepare site-specific EIR where impacts may be significant.</li><li>2. Require design, construction and operation of hazardous waste facilities to achieve compliance with the noise policies of the local jurisdiction's general plan.</li><li>3. Operate the facility in compliance with local jurisdiction's noise ordinance.</li></ol> |
|--|---|

### Impacts

2. Residents near hazardous waste facilities could be disturbed by the impact of light, glare or shadows.

### *Visual/Aesthetic*

1. Facility construction, operation and processes may have adverse visual impacts.

### *Cultural Resources*

1. Construction of a hazardous waste facility could cause the destruction or impede access to significant cultural resources.

### *Health and Safety*

1. Possible exposure to hazardous waste by workers at and visitors to facilities, and by people who live or work near hazardous waste facilities.

### Mitigations

4. Design the facility in compliance with local design guidelines regarding light and glare.

1. Facility construction and operation plans should meet local city/county design criteria, guidelines or standards for visual compatibility.

2. Prepare a site-specific EIR where impacts may be significant.

1. Identify the potential facility site's proximity to known cultural resources. On-site reconnaissance by an archaeologist may be required as part of the project assessment. If significant cultural resources are found at the site, follow CEQA guidelines for the mitigation of effects on historic and prehistoric archaeological resources.
2. Upon discovering or unearthing any burial site as evidence by human skeletal remains, the person making such discovery shall immediately notify the County Coroner.

1. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety).
2. Prepare site-specific EIR where impacts may be significant.
3. Implementation of the HWMP with its emphasis on waste reduction as discussed in Chapter 7.

## Impacts

2. Improperly treated wastewater effluent could cause exposure to the public of vapors from sewer system or evaporation ponds. Improperly treated discharges could affect human health indirectly by interfering with the water treatment process.
3. Improper management could result in accidents that create health risks.

## Mitigations

4. Prior to the siting of a facility, perform a risk assessment to identify hazards. Do not site a facility if health risks are found not to be within acceptable levels.
5. Construct and monitor all storage tanks in conformance with federal and state regulations. At all facilities, sample and analyze incoming waste materials and outgoing effluent discharges.
6. Incorporation of new hazardous waste reduction equipment into existing installations and its operation must comply with the Uniform Building and Fire Codes and the local hazardous waste ordinance.
7. In conformance with the regulations of the RWQCB monitor and regulate discharges of treated wastewater to the sewer system.
8. Develop an emergency response plan and prepare a facility operational plan that identifies appropriate measures to separate treatable from untreatable wastes.
9. For recycling facilities comply with all BAAQMD regulations.
10. Site a repository only in areas meeting the geologic and other requirements of the State Water Resources Control Board for Class I waste management facilities.
11. Refer to mitigation numbers 1 - 8 above.
12. Refer to mitigation numbers 4,6,7 and 8 above.

### Impacts

4. Approximately one hazardous waste incident involving trucks hauling hazardous waste can be projected to occur every two years in the County.

### Mitigations

13. Comply with the HWMP policies relating to transportation described in Chapter 9.
12. Implement the policies of the HWMP supporting the establishment of an effective source reduction program.
13. Hazardous waste haulers shall meet all pertinent federal and state safety requirements.
14. Comply with the Operations Section of the County Emergency Response Plan regarding a hazardous materials incident.

### ***Energy***

1. Increasing in operational energy usage associated with new recycling or waste treatment processes.

1. Prepare a site specific EIR where impacts may be significant.
2. Comply with Title 24 of the State Building Code regarding efficient design and construction. Optimize facility design to recycle materials and use less energy-intensive processed, where possible.

### ***Public Services and Utilities***

1. Implementing hazardous materials inspection programs and providing services at incident scenes will increase the demand for Health Department services. Increased program responsibilities and an expected increase in hazardous materials incidents could strain Health Department resources. Continued training of personnel and upgrading of equipment and facilities to respond to hazardous materials incidents will demand the dedication of more resources to maintain these capabilities.

1. Implementation of the HWMP would result in a long term improvement in the quality of the environment and reduce demand on public services through reduction of improper hazardous waste disposal methods.
2. The county's and cities' Hazardous Materials Area Plans and Multi-hazard Functional Plans should be updated as required.

### Impacts

2. Hazardous waste contamination of groundwater can be a serious problem.
3. Potential for releasing untreated hazardous effluent to the local publicly owned sewage treatment works (POTW).

### Mitigations

3. Prepare and update regularly emergency response and evacuation plans.
4. Comply with HWMP regarding public education on the effects of hazardous substances and what to do in emergencies.
5. Comply with local regulation regarding water conservation measures at all facilities to ensure that water demand can be kept to a minimum.
6. Refer to mitigation number 1 above.
7. Implementation of the HWMP regarding public education of hazardous waste generators on responsible management of hazardous wastes.

## **12-4 Project Description**

### **12-4(1) Description of the County**

Located at the southern end of San Francisco Bay, Santa Clara's 1300 square miles make it the second largest of the nine Bay Area counties; the county's population of more than 1.4 million is the largest among them. The county includes the Santa Clara Valley, with the Santa Cruz Mountains to the west and the Diablo Range to the East, and the Baylands. There are fifteen cities in the county, thirteen of them, with more than 90% of the county's population, in the North Valley. The Southern Valley includes two cities, but is predominantly rural.

The Diablo Range, encompassing about half of the county's land area, is largely inaccessible beyond its foothills. Because of sparse rainfall, it consists primarily of grasslands and chaparral. The Santa Cruz Mountains include rolling grassland foothills and steep slopes covered with brush, mixed hardwoods, and some areas of dense redwoods and Douglas fir. Both mountain ranges include active earthquake faults and areas of geologic instability. The Baylands, adjacent to San Francisco Bay, extend along the northwestern edge of the county. These lands include the open waters of the Bay, vast salt evaporation ponds, and remnant areas of salt marsh.

Santa Clara County's climate is Mediterranean, with warm, dry summers and mild wet winters. Rainfall ranges from an average of 12 inches a year in central San Jose to over 60 inches in parts of the Santa Cruz Mountains.

For the 30-year period from 1950 to 1980, Santa Clara County had one of the fastest growth rates in the county. County population grew from 250,000 in 1950 to 1.2 million in 1980, then to 1.4 million in 1985. /1/. High-technology electronics industries have been chiefly responsible for the county's economic and population growth, but have also been a major producer of hazardous waste. It is estimated that population will continue to grow at the rate of about 1% per year. The estimated population of Santa Clara County in 2000 is greater than 1.6 million. /2/

#### **FOOTNOTES**

/1/ County of Santa Clara, 1982, Santa Clara County General Plan

/2/ California Department of Finance, 1987, Population Growth Projections

Map 12-4.1: Location Map of Santa Clara County



## 12-4 (2): Hazardous Waste Management Plan

Santa Clara County has prepared a Hazardous Waste Management Plan (HWMP) in compliance with AB 2948 (Tanner, 1986) and Guidelines for the Preparation of Hazardous Waste Management Plan prepared by the Department of Health Services pursuant to this legislation. The HWMP consists of goals, policies, strategies and programs to guide the safe management of hazardous waste and maintain the economic and environmental quality of life in Santa Clara County.

### Setting

Santa Clara County is currently a net exporter of hazardous waste. Table 12.4.1 illustrates this situation. In 1986, 87,430 tons of hazardous waste generated in Santa Clara County were shipped off-site. Of this amount, 66,451 tons (75%) were exported for treatment and disposal to other counties within the state. The majority of this exported waste was sent to hazardous waste management facilities in Contra Costa County (IT facility; closed in 1987), Kings County (Kettlemen site) and Santa Barbara County (Casmalia site). The remaining 25% of the locally generated waste (20,971 tons) were treated and disposed within the county, sent out-of-state, or categorized as "unknown".

**Table 12.4.1 Waste Generated and Disposed**

#### WASTE GENERATED IN SANTA CLARA COUNTY

and TREATED/DISPOSED LOCALLY	10,550 tons
and TREATED/DISPOSED OUTSIDE COUNTY	66,460 tons
and TREATED/DISPOSED UNKNOWN	10,420 tons

**TOTAL** 87,430 tons

#### TREATMENT/DISPOSAL OF WASTE IN SANTA CLARA COUNTY

and GENERATED LOCALLY	10,550 tons
and GENERATED OUTSIDE COUNTY	3,670 tons
and GENERATED FROM UNKNOWN SOURCES	1,680 tons

**TOTAL** 15,900 tons

Almost 16,000 tons of waste were treated and disposed of in Santa Clara County (in 1986), of which 10,548 tons were generated locally. A total of 3,603 tons were imported from 37 (California) counties, with an additional 1,679 tons from out-of-state.

Projections of future hazardous waste generation indicate that, depending on the level of waste reduction achieved, anywhere from 76,510 to 127,500 tons of waste will be manifested in Santa Clara County by the year 2000.

At present, Santa Clara County has 14 permitted commercial off-site hazardous waste management facilities. In 1986, these facilities combined to treat, recycle, recover, or stabilize 15,900 tons of

waste. None of the facilities within the county were used to capacity, indicating that treatment methods, to some extent, do not match the types of waste that are generated locally. In regards to the needs of generators located within the county then, a shortfall appears in the general treatment methods of: incineration, oil recovery, aqueous treatment for metals/neutralization and organics, and stabilization and other recycling for some waste types.

## **Hazardous Waste Management in Santa Clara County**

The HWMP establishes a framework for directing Santa Clara County's hazardous waste management efforts. The intent is to provide for the hazardous waste management needs of the county's generators by:

- 1) Encouraging and achieving a reduction in hazardous waste generation
- 2) Siting appropriate, environmentally sound, and economically feasible hazardous waste management facilities for waste streams that cannot be reduced
- 3) Signing inter-jurisdictional agreements with other counties as a means of utilizing needed and available hazardous waste management capacity in other jurisdictions.

## ***Waste Reduction***

Waste reduction means the lessening, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored or disposed. By utilizing waste reduction practices and programs, the volume and toxicity of future hazardous waste generation in the county can be reduced. To encourage such practices, the Hazardous Waste Management Hierarchy has been adopted as part of the HWMP. The Hierarchy which can be found in both the 1976 Federal Resource Conservation and Recovery Act and in the California Health and Safety Code, establishes priorities to guide the development of hazardous waste policies and programs for all generators, including large and small businesses, public facilities, and households. It emphasizes the importance of preventing the generation of hazardous waste by focusing primarily on reducing waste within the manufacturing process, through the use of better operational practices, process changes and the use of less or non-hazardous materials. In order of priority, the following waste management practices make up the Hazardous Waste Management Hierarchy:

- **Source Reduction**, the most preferred method in the hierarchy, refers to the avoidance or elimination of waste generation at the source, usually within a process. This term covers any technique by which the amount of hazardous substance is reduced, within a plant or facility manufacturing process.
- **Recycling and Reuse** refers to the use or reuse of a waste as an effective substitute for a commercial product, or as an ingredient or feedstock in an industrial process. It also includes the reclamation of useful constituents within a waste material or removal of contaminants from a waste to allow it to be reused.
- **Treatment** is the last option in a waste reduction program and should only be utilized if a waste stream cannot be feasibly reduced at the source or recycled. Both on-site and off-site treatment methods are used to reduce the volume and toxicity of hazardous waste. On-site treatment is preferable to off-site treatment.
- **Secure Disposal** of residuals from waste recycling and treatment.

While the Hierarchy reflects regulatory incentives for waste reduction, many large firms in Santa Clara County, faced with rising waste management costs and enormous potential liabilities for

clean-up disposal sites, have already begun to move "up the Hierarchy" toward source reduction and away from reliance on land disposal and other off-site facilities.

The HWMP identifies two sets of estimates for waste reduction potential for hazardous waste generators in the County by the year 2000. Achievement of a minimum 10% reduction would result in 114,800 tons of manifested waste; 40% reduction would bring the volume of manifested waste down to 76,500 tons for the year 2000. Depending upon the adoption of policies and incentives which are utilized to encourage further waste reduction the projected volumes of waste could therefore be reduced considerably. Clearly waste reduction efforts can lessen the overall need for additional hazardous waste management facilities.

### ***Siting Facilities***

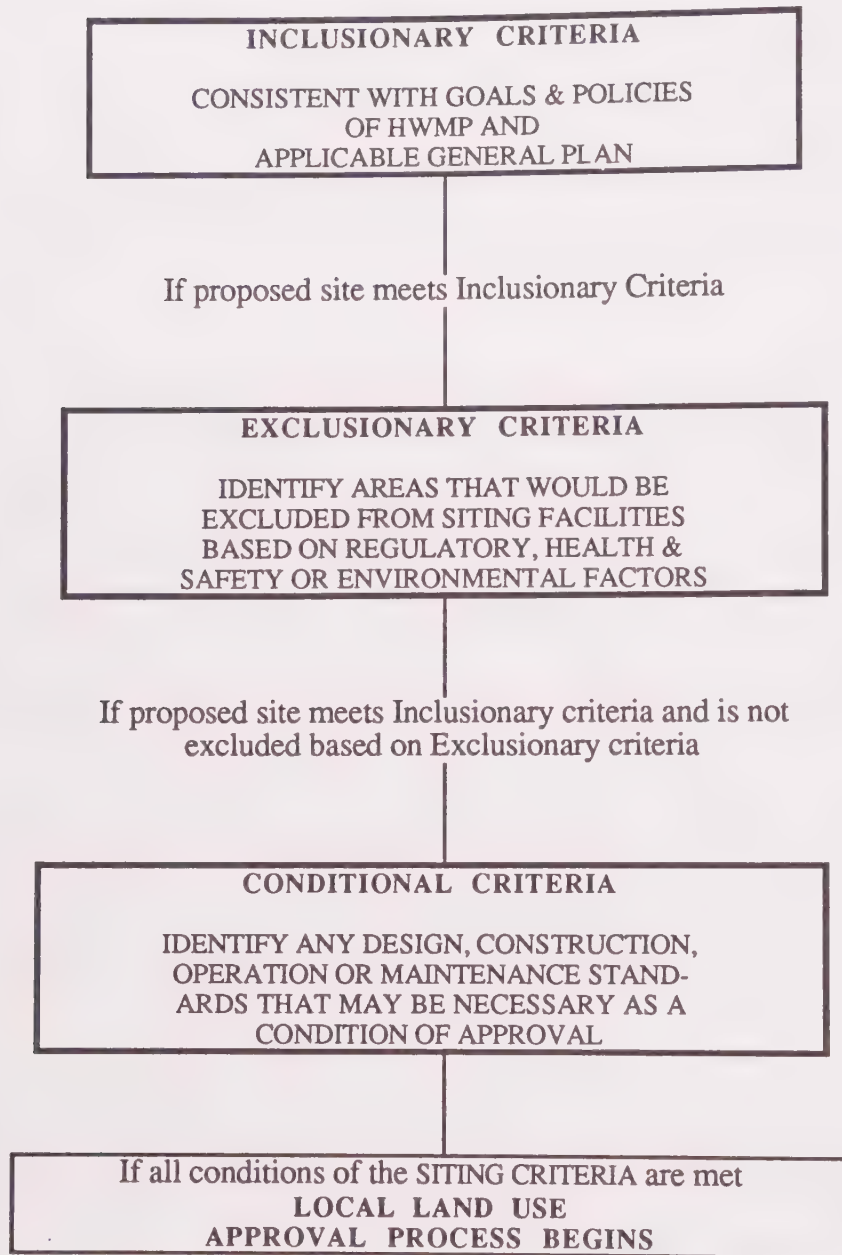
The HWMP emphasizes that to reduce or eliminate the generation of hazardous waste, whenever feasible, is the most desirable management option. However, while waste reduction can result in a sizeable decrease in the amount of waste generated in the county, such efforts cannot realistically be expected to eliminate ALL wastes. It's possible then, that one or more hazardous waste management facilities may need to be sited within the county in order to "handle" locally generated waste. In response to this potential need, siting criteria have been developed which provide a planning context for siting new facilities. The siting criteria establish certain constraints, standards and guidelines to be used in evaluating proposed sites and are designed to ensure that, should a facility be developed, it will be located (and constructed) so as to pose the least threat to public health and safety and the environment. The siting criteria are to be used whenever evaluating a proposal to site and develop a new off-site commercial facility or significantly expand or modify an existing facility.

There are three "levels" of siting criteria that must be considered for a project proposal: Inclusionary criteria, Exclusionary criteria, and Conditional criteria.

- **Inclusionary criteria** are based on land use planning concerns as set forth in local planning documents, and are used to identify those areas where a facility would be most appropriately located with respect to the goals and policies of the HWMP and the applicable General Plan.
- **Exclusionary criteria** are regulatory, health and safety or environmental factors which exclude areas from consideration as suitable locations for hazardous waste facility. These criteria are used to identify areas that are either: restricted by federal, state or local regulations from siting a hazardous waste facility; or of such high sensitivity that the potential risk to the community and the environment (in the event of an accidental release) eliminate it from consideration.
- **Conditional criteria** provide additional guidelines for evaluating site specific proposals which have met both the inclusionary and exclusionary criteria. Conditional criteria identify specific mitigation measures -- i.e., design, construction or maintenance standards -- that may be required as a condition of approval. These criteria can only be evaluated on a site-specific basis, according to the type and size of the proposed facility.

If all conditions of the siting criteria are met, the project would then be subject to the local land use approval process, including the issuance of all applicable permits and the standard review and decision procedures (i.e., Planning Commission/City Council). This would be in addition to (the proponent) securing any additional permits that may be required by federal, state, or local authorities. Figure A illustrates the siting process, including the correlation between the types of criteria.

**Figure 12.4.1: The Siting Process**



The siting process recognizes two categories of hazardous waste management facilities: 1) Residuals repositories; and 2) Transfer and Storage stations, Treatment, Recycling and Stabilization facilities, and Incinerators. The second category of facilities is referred to as "Other" facilities. Below is a brief description of each of these hazardous waste management facilities:

- **Residuals repositories** are long term hazardous waste disposal sites
- **Transfer and Storage Stations** collect and consolidate small shipments of waste
- **Treatment facilities** treat hazardous waste
- **Recycling facilities** recover liquid organics, distill solvents and refine oil
- **Stabilization facilities** solidify or stabilize wastes that cannot be recycled, treatment or destroyed
- **Incinerators** burn organic liquids and/or solids that cannot be reclaimed

The siting criteria distinguishes between these categories of facilities by imposing more restrictive siting and performance criteria for RESIDUALS REPOSITORIES because they present a potentially greater risk to the community and the environment. In contrast, many of the risks associated with "OTHER" FACILITIES can be mitigated to a large degree through siting factors and performance standards. Locational and performance standards are therefore much more stringent for RESIDUALS REPOSITORIES than they are for "OTHER" types of facilities.

By applying the INCLUSIONARY and EXCLUSIONARY CRITERIA to a county-wide land use map, "general siting areas" have been identified which may be suitable for hazardous waste management facilities. It is important to note that the map DOES NOT provide detailed, site specific locations, nor does it vest any rights; rather, it is intended to demonstrate that areas exist within the County which appear to meet the siting criteria. All potential siting areas identified on the map are located within industrially zoned areas AND appear to meet the requirements of the siting criteria. However, within the areas shown, a site specific proposal would still need to consider the CONDITIONAL CRITERIA, as well as any local planning conditions that may be imposed. Thus, while the map is useful in illustrating to decision-makers, developers and the general public those areas that appear to meet the INCLUSIONARY and EXCLUSIONARY CRITERIA, it does not substitute for the extensive site-specific investigation that is required for all proposed hazardous waste management facilities.

### ***Interjurisdictional Agreements***

The third strategy to be utilized by the county to provide for needed hazardous waste management capacity is through agreements with other jurisdictions. The concept behind inter-jurisdictional agreements is that the siting of a particular type of hazardous waste management facility that may be needed in the county may not be environmentally appropriate or economically viable. In such an instance, the county would negotiate an agreement with one or more jurisdictions to facilitate the siting of a larger, environmentally appropriate and economically viable facility (or facilities) to be located elsewhere. In turn, the county would agree to actively consider, and if appropriate, to commit to the siting of an environmentally appropriate facility within its own borders that is designed and sized to serve the hazardous waste management needs of other jurisdictions as well as of the county.

All inter-jurisdictional agreements shall follow the principle of "fair share", which requires that each county be responsible for its fair share of waste management. Should the county have a capacity equal to or in excess of its total hazardous waste management needs, it will have achieved

its fair share and not be required to accept the siting of additional facilities, except as may be provided by an inter-jurisdictional agreement. Recognizing that the waste streams in Santa Clara County may not support an economically efficient hazardous waste facility, the HWMP encourages the use of inter-jurisdictional agreements as a means to balance economic efficiency in the size of facilities and to responsibly handle the county's fair share of the waste generated.

## **Conclusion**

Responsible management of hazardous waste will play an important role in sustaining Santa Clara County's economic base while also assuring the protection of public health and safety and the environment. Efforts to aggressively reduce waste generation, the expansion and construction of new on-site treatment facilities close to the source of waste generation, and the use of inter-jurisdictional agreements will decrease the need to site additional hazardous waste management facilities within the county. Should this need occur, the siting criteria would ensure that all facilities are located and constructed so as to pose the least threat to public health and safety and the environment.

Efforts to successfully manage hazardous waste will require both private and public sector involvement and cooperation. The private sector will need to meet regulatory requirements such as State and Federal land disposal bans. Hazardous wastes generators, especially large businesses, will focus on methods for reducing their waste generation. Private developers will be responsible for proposing the siting and expansion of environmentally and economically feasible management facilities.

At the same time, public sector involvement will be needed to assist in achieving maximum waste reduction by providing information and assistance, especially to small quantity generators. And finally, in the event the response from private developers is not adequate to meet the off-site facility needs of the county's generators, locally government will coordinate the signing of inter-jurisdictional agreements to gain access to hazardous waste management capacity.

## 12-5 Uses of the EIR

The Santa Clara County HWMP is to be adopted as an element of the county's General Plan, after the HWMP has received final approval from the California Department of Health Services [DHS]. The county's HWMP, therefore, qualifies as a "project" within the meaning of CEQA, Section 21065, and Article 20, Section 15378(a)(1) of the State of California's CEQA Guidelines.

The County of Santa Clara's Department of Planning and Development, prepared an Initial Study which concluded that an Environmental Impact Report (EIR) would be required for the county's HWMP. It was determined that "the proposed project may have significant effects on the environment." /1/

### Program EIR

This EIR is being prepared as a Program EIR, as described in Section 15168 of the CEQA Guidelines, for the Santa Clara County HWMP and not for a specific facility development. This approach provides some advantages to the county of Santa Clara. It allows for the consideration of the broad environmental impacts of the county's HWMP (necessary for Board of Supervisors approval of the HWMP itself), and it provides a basis for analyzing specific programs and site-specific projects in the future, by "tiering" (CEQA Guidelines, Section 15385) these onto the program EIR. This EIR, then, provides both a **basis and a blueprint** for the preparation later of site-specific EIRs on proposed TSD facilities in the county, including each of the 15 cities.

Upon approval of the EIR by the Board of Supervisors, each of the fifteen cities within Santa Clara County will be requested to approve the HWMP. In order for a plan to be adopted by the county, it must be approved by a majority of the cities within the county which contain a majority of the population of the incorporated area of the county. This means that approval must be obtained from a majority of cities within the county and the cities approving the Plan must contain a majority of the population. The plan cannot be approved by a minority of the cities containing a majority of the population. Amendments to the plan must be approved in the same manner. The Program EIR will be the primary environmental document used by cities to evaluate potential impacts due to the plan approval. Environmental assessments will be required for site specific hazardous waste projects which may be proposed subsequent to the plan approval.

### HWMP Approval

In order to approve the Santa Clara County HWMP, DHS must make the following determination:

- The Plan complies substantially with DHS's adopted guidelines for the preparation of hazardous waste management plans. (H & S Code, Section 24135.7(a)(1))

In its Guidelines, DHS has listed 24 criteria which must be met in order for a county (or COG) plan to obtain the department's approval. Among these criteria is the **requirement that "the provisions of CEQA have been met."** It must be noted as well that, prior to the submission of the county's Final HWMP for DHS approval, the Plan will have "been approved by a majority of the cities within the county which contain a majority of the population of the incorporated area of the county." /2/ City review of the Santa Clara County HWMP will include review of the Draft EIR on the plan as well.

- The Plan applies the methods, techniques, and policies established by DHS to analyze the waste stream and to determine whether there is a need for additional or expanded hazardous waste facilities to manage safely and dispose properly of the hazardous waste generated within the county. (H & S Code, Section 25135.7(a)(2))

- If the Plan determines that there is a need for additional or expanded hazardous waste facilities, it proposes general areas or specific sites which may be suitable locations for facilities. However, if the Plan instead contains siting criteria for selecting sites for hazardous waste facilities, the Plan shall propose general areas where the criteria might be applicable. (H & S Code, Section 25135.7(a)(3))
- If the county has entered into a formal agreement with other counties to manage hazardous waste, the agreement is documented. (H & S Code, Section 25135.7(a)(4))
- The county HWMP provides an identification of those hazardous waste facilities that can be expanded and of general areas or specific sites for new facilities;
- The HWMP contains a statement of goals, objectives, and policies for the siting of hazardous waste facilities and the management of wastes through 2000.

After DHS approval of the Plan, the county shall either incorporate the HWMP by reference into the County's General Plan or enact an ordinance which requires that all applicable zoning, subdivision, conditional use permit, and variance decisions be consistent with the Plan. After the County Plan is adopted, each city within the county must take one of the following actions within 180 days after receiving notification that the Plan has been adopted:

- (1) Adopt a city hazardous waste management plan consistent with the approved County Plan and containing the elements required of county plans ; or
- (2) Incorporate by reference the applicable portions of the approved County Plan into the city's general plan; or
- (3) Enact an ordinance requiring that all applicable land use entitlement decisions are consistent with the portions of the approved County Plan which identifies general areas or siting criteria for hazardous waste facilities.

The Program EIR will be used by both the County and the 15 cities when they incorporate the Plan into their local decision-making process or general plan. It will also be referenced when individual projects come before these decision-makers for approval. Other agencies that may use the EIR for their own actions include:

**Federal:** U.S. Environmental Protection Agency (EPA)

**State:** Department of Health Services  
California Highway Patrol  
Department of Transportation (CALTRANS)  
Waste Management Board  
Air Resources Board  
Governor's Office of Planning and Research  
Department of Conservation, Division of Mines and Geology  
Department of Fish and Game  
Department of Parks and Recreation  
Office of Emergency Services  
Water Resources Board

**Local/Regional:** Association of Bay area Governments [ABAG]  
Regional Water Quality Control Board  
Bay Area Air Quality Management District  
Santa Clara Valley Water District  
Airport Land Use Commission (ALUC)

**Footnotes:**

- /1/ Santa Clara County, Office of Planning, Department of Land Use and Development, 1987. Initial Study, County Hazardous Waste Management Plan.
- /2/ California Department of Health Services, 1987. Guidelines for the Preparation of Hazardous Waste Management Plans.

## 12-6: Plan and Policy Consistency

### Santa Clara County General Plan

Santa Clara County's General Plan was adopted by the Board of Supervisors on November 18, 1981. The Plan is reviewed annually, and amendments to the plan are published thereafter. The General Plan describes the regional and physical setting of Santa Clara County; sets out plans and policies for urban and rural areas; land use plans and policies; and goals, policies and implementation in ten planning categories.

"Solid Waste" is not a separate element of the General Plan. It is instead contained in the section entitled, "Constructed Environment". The hazardous waste portion of the Solid Waste section is about one paragraph. By contrast, the County's Hazardous Waste Management Plan, when it is accepted as final by the State Department of Health Services, will be adopted as an element of the General Plan.

### City General Plans

The Santa Clara County Hazardous Waste staff consulted with the planning staffs and reviewed the general plans of those cities in which "general siting areas" possibly suitable for hazardous waste facility sites could be identified. After this consultation and review, and after a screening of areas according to the criteria provided by the California Department of Health Services as well as locally developed siting criteria, the County of Santa Clara identified general siting areas for treatment, storage, and disposal (TSD) facilities in eleven cities. Potential sites for residuals repositories are not identified in the Plan.

It must be noted that the analysis and selection of general siting areas were based on physical criteria (e.g., not located within 200 feet of an active or potentially active fault) only. Application of other criteria, such as proximity to residences, could reduce the size of these areas, or even eliminate some of them from consideration.

All potential siting areas are located in industrially zoned areas. A site-specific proposal would have to meet criteria which are specifically unique to that site, such as, for example, distance from an immobile population. The Draft HWMP's map entitled "General Areas that May Meet the Criteria for Hazardous Waste Management Facilities" shows the location of these siting areas.

Cities in which general siting areas have been identified are:

Campbell	Mountain View
Cupertino	Palo Alto
Gilroy	San Jose
Los Gatos	Santa Clara
Milpitas	Sunnyvale
Morgan Hill	

Once the HWMP is approved by the State Department of Health Services the cities must also adopt a local Hazardous Waste Management Plan by one of the three methods as set forth in section 12-5. Although **consistency** is required between a county and city plan, the term is not defined in the Tanner Legislation. The most likely interpretation is that "consistency" will be defined as it has been in case law and the opinions of the Attorney General dealing with General Plans.

A key policy of the HWMP related to facility siting (Policy 8-1) is worded as follows: "All proposals to site a hazardous waste management facility shall assure compatibility with

neighboring lands uses and be **consistent with the appropriate Jurisdictions General Plan**, local land use permitting process and the CHWMP." (emphasis added)

## **Regional Plans and Policies**

The HWMP seeks consistency with regional plans and policies through a variety of means. One policy (Chapter 8) requires that **"all proposals for hazardous waste facilities should be consistent with plans and policies of regional regulatory agencies (i.e., Air Quality Management District, and the Regional Water Quality Control Board) that protect air and water quality."** The local HWMP is also incorporated into the San Francisco Bay Area Regional Hazardous Waste Management Plan developed by the Association of Bay Area Governments. The ABAG plan provides a regional perspective on the Management of Hazardous Wastes in the Bay Area. The Plan covers the nine San Francisco Bay Area counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

## **State and Federal Plans and Policies**

The HWMP was prepared following the "Guidelines for the Preparation of Hazardous Waste Management Plans" developed by the State Department of Health Services. The Guidelines delineate the requirements for Plan content and review procedures to be used by DHS in approving the Plan. Review of the Draft HWMP by DHS indicate that several of the siting criteria are perceived as being too restrictive and unreasonably impair the feasibility of private industry siting facilities in the county. DHS also felt that the purpose statement, goals, and policies impair the ability to provide for an effective and efficient hazardous waste management system for California's entire waste stream to the year 2000.

In the area of siting criteria, DHS is challenging any criteria that is not in the Guidelines. The Plan contains additional criteria which based on local experience and concern, are designed to protect public health, safety and welfare. Additional siting criteria (found in Chapter 8) include measures for:

- (1) Protection from Dam or Levee Failure Inundation Areas
- (2) Protection of Watershed Areas
- (3) Protection of Existing Groundwater Quality
- (4) Protection of Immobile population

These criteria were added to the Plan due to concerns and experience within this county relative to groundwater contamination and the potential health effects from being in close proximity to toxic substances. Although these criteria appear to be in conflict with those DHS Guidelines, the county feels that these additional levels of protection are necessary if a hazardous waste management facility is to be successfully sited.

The Plan also supports the concept of **fair share** (Chapter 6) and the use of inter-county agreements. Through the fair share allocation process each county will make some contribution to siting hazardous waste management facilities consistent with needs identified for the. Region Under this fair share concept a county may agree to site a facility which has the capacity to handle wastes in excess of that generated within the county. In exchange for agreeing to site a certain type of facility to serve regional needs, the county limits its extra county responsibility to that type of facility. Similarly, other countries within the region would also agree to site regionally sized facilities for other waste streams. In this manner, counties within the region will agree to site needed facilities sized to meet identified regional needs.

The DHS Guidelines require each county to plan for all types and sizes of facilities regardless of locally identified needs. It is possible, under the provisions of the Guidelines, for a county that

has a need for ten tons of commercial incineration capacity to be required to site a facility with the capacity to handle incinerable wastes for the entire state. Most counties feel that the DHS Guidelines exceed the intent of the Tanner Legislation in this regard.

Regarding other State and Federal plans, the Plan supports the concept of the Hazardous Waste Management Hierarchy which encourages waste reduction and recycling. This concept is consistent with the Federal Resource Conservation and Recovery Act (RCRA) and California Senate Bill 1500, Roberti, The Hazardous Waste Management Act of 1986.

## 12-7: Description of the Existing Setting

This chapter describes the existing setting regarding each of the environmental factors evaluated in the EIR. The County General Plan and the General Plan of each of the cities describes that setting in much greater detail and is incorporated by reference in this document. Chapter 3 of this Hazardous Waste Management Plan describes the current situation regarding hazardous waste generation in Santa Clara County.

### *12-7(1) Land Use*

#### **Urban Areas**

Prior to 1950, Santa Clara County was still predominantly rural. Today, the northern Santa Clara Valley has been transformed into a vast urban metropolis with an economy dominated by high-technology electronics. Palo Alto and Santa Clara are major centers of high-tech jobs in the North County Area.

Islands of unincorporated territory are scattered throughout many of Santa Clara County's fifteen cities. This is a result of the less regulated urban growth that occurred in the 1950's and 60's. Cities stretched out long tentacles to connect to areas far from their urban core. This kind of expansion is discouraged under current county policy.

Historically, most unincorporated-property owners preferred to develop in the county rather than the cities, since property taxes were much lower in the county. The passage of Proposition 13 reduced the ability of numerous special districts to provide new public services since such districts are limited in their ability to tax property owners. This situation has indirectly encouraged development inside cities where services are already present.

Santa Clara County faces a number of problems in trying to accommodate future growth. These problems include:

- Depletion of available, vacant flat land;
- High cost of living [especially home prices], which makes single-family home ownership difficult;
- Increased transportation costs - vehicles, insurance, fuel - coupled with longer commuting distances;
- Infrastructure to support development, such as freeways and sewage treatment facilities, is at or exceeds capacity;
- High construction costs;
- Limited ability to provide additional public services.

Many of the factors impeding future growth involve problems that extend beyond county boundaries. Regional approaches and committees, such as the Integrated Environmental Management Project for the Santa Clara Valley and the Intergovernmental Coordinating Committee, have been established to coordinate planning solutions to environmental and other problems. The Association of Bay Area Governments (ABAG) is coordinating a regional

approach to hazardous waste management planning for the nine counties of the San Francisco Bay Area.

The checkerboard pattern of urban sprawl resulted from fragmented planning and inadequate policies to govern urban growth. To deal with the problems of urban sprawl, Santa Clara County, its fifteen cities, and the Local Agency Formation Commission (LAFCO) adopted countywide urban development policies which have the effect of focusing such development in the cities.

## **Rural Areas**

Under policies to control urban sprawl, most of the county's unincorporated lands have been designated by the General Plan as Resource Conservation Areas or Rural Residential Areas. Lands unsuited for urban development should not be annexed to cities or included in urban service areas.

Resource Conservation Areas consist primarily of mountain lands, wetlands and agricultural lands in the county. The density and type of development in these areas will be controlled strictly to preserve the unique natural qualities of these lands.

Rural Residential Areas are primarily lands outside of city urban service areas where residential densities generally exceed one dwelling unit per five acres. Most of these areas will not be annexed to cities in the foreseeable future. Residential, agricultural and open space uses will predominate in rural residential zones. Only commercial, industrial and institutional uses which serve the local population will be permitted. Rural area policies are summarized below.

Zoning must be consistent with the County's General Plan. Such consistency includes both the land use designation and compatibility with the entire body of policies for unincorporated area development. If a property does not meet the conditions necessary for environmentally safe development, it cannot be subdivided or developed regardless of the density limitations of the General Plan designation or the zoning district. Zoning does not provide an entitlement to a given level of development; rather, it acts as a limit on the maximum amount of development on a given property.

## **12-7(2) *Flora & Fauna***

### **Baylands Habitats**

The Baylands are an important environmental factor for the climate and ecosystem of San Francisco Bay and Santa Clara County. These Baylands include the waters of San Francisco Bay, the estuaries, mud flats, salt marshes, salt ponds and levees. Seasonal and year-round habitats for many thousands of birds are provided by the various bayland communities. In addition, the Baylands provide habitat for several species of rare, threatened or endangered birds and mammals.

Most of the endangered (including threatened and rare) species of Santa Clara County are found in Bayland communities. These species are identified in Table 12.7.1.

(1) **Estuary** - Estuaries occur where salt and fresh water mix. In Santa Clara County, estuaries are in the flatlands which rim San Francisco Bay, where fresh water streams originating in the Santa Cruz Mountains and Diablo Range meet the Bay. Estuaries are characterized by salinity fluctuations caused by the influx of fresh water from winter and spring rains, and by predominance of salty tidal water in summer and fall. Species diversity is limited because of salinity fluctuations.

(2) **Mud Flat** - The mud flat is an unvegetated area which occurs around the rim of the Bay. Mud flat areas are regularly inundated by tides.

(3) **Salt Marsh** - Salt marshes occupy a zone above the mud flat, from just below mean tide level to the level of the highest tides among the Bay rim. Although the zone is vegetated, the species diversity is limited by tidal fluctuations.

(4) **Salt Pond** - The salt ponds are areas around the rim of the bay which have been diked for salt evaporation. These areas are not vegetated.

(5) **Levee** - Levees are raised earthen berms or dikes, both man-made and of natural origin, that occur around San Francisco Bay. Levees are less saline than other Bayland communities.

Valuable Baylands habitats listed in the Inventory of California Natural Areas /1/, are:

(a) **Palo Alto Marshlands** - The Palo Alto Marshlands include salt marsh, mud flats, and open water. They lie on the rim of San Francisco Bay in Palo Alto. This area includes the rare Cordylanthus maritimus ssp. maritimus, (salt-marsh bird's beak), and is an important habitat for migratory shorebirds and water owl.

(b) **South San Francisco Bay National Wildlife Refuge** - This area includes salt marsh, mud flats, salt ponds, open water, and uplands. It lies along the Bay rim, extending into San Mateo and Alameda Counties. The Refuge is an important waterfowl, wildlife and aquatic life habitat. Among the plant species found in the Refuge is the rare Cordylanthus Maritimus ssp. maritimus.

## **Freshwater Habitats**

The component biotic communities that constitute the Freshwater Habitats are flowing streams, riparian zones, freshwater marshes, and lentic zones. In Santa Clara County, there are numerous streams and creeks that flow from the hills, across the valley floor to the Bay. Associated with these streams and creeks are freshwater marshes, and several natural and man-made ponds and reservoirs.

This freshwater system provides a valuable resource and wildlife habitat. The streams provide important, spawning grounds for fish, including anadromous species such as steelhead trout and striped bass/3/, and foraging areas for many species of amphibians, reptiles, birds and mammals. Marshes and ponded areas provide breeding areas for insects and amphibians, as well as resting and feeding areas for migratory birds.

Endangered species in Santa Clara County associated with this habitat type are identified in Table 12.7.1.

(1) **Flowing Streams** - Santa Clara County has numerous rivers and creeks, generally flowing toward the valley and into the Bay from the surrounding hills. These rivers and streams would severely restrict siting opportunities for hazardous waste facilities. Freshwater streams generally originate in the Santa Cruz Mountains and the Diablo Range and flow toward San Francisco Bay. The streams flow rapidly at the higher elevations and generally are unvegetated there, except for algae. Slow-moving streams, generally found at the lower elevations, have a low dissolved oxygen content and generally support only free-floating organisms, such as filamentous green algae. Streams with intermittent (seasonal) flow may have emergents (erect, rooted, herbaceous plants which grow in water) and algae.

(2) **Riparian Zones** - Riparian zones occur along the banks of streams. Plant community makeup, which depends upon the steepness of the channel and the frequency of flooding, can include trees, shrubs and emergents. In lower elevations of mountain ranges and the Santa Clara Valley, vegetated streams with riparian zones can be most likely found.

(3) **Freshwater Marshes** - Freshwater marshes occur where permanent streams become slow-flowing, warm, and shallow, and contain a low level of dissolved oxygen. This zone supports emergents and algae.

(4) **Lentic Zones** - Lentic zones are areas of standing water that include agricultural ponds, reservoirs and percolation ponds in Santa Clara County. Agricultural ponds, which are relatively permanent, may support freshwater marsh emergent vegetation along their shorelines. Reservoirs usually support only algae, because of fluctuating water levels. Percolation ponds provide groundwater recharge and are drained and "cleaned out" every few years to protect this function. They frequently develop freshwater marsh vegetation along their edges.

The following Valuable freshwater habitats are listed in the Inventory of California Natural Areas /1/:

(a) **Arroyo Hondo** - This site includes a permanent stream which drains into Calaveras Reservoir. The site is surrounded by oak woodland, savanna and grassland. The riparian community includes willows (Salix sp.) and sycamores (Platanus racemosa). The Arroyo Hondo is an important watershed and wildlife and fish habitat.

(b) **Stevens Creek at Monte Bello Ridge** - This is the section of Stevens Creek that flows through the Eastern Santa Cruz Mountains, including a portion of the San Andreas Rift Zone. A well-developed riparian community, including strands of sycamores (Platanus racemosa), big leaf maples (Acer macrophyllum), and white alder (Alnus Rhombifolia), are found here. The flow of the creek is fed by springs along the ridge.

## **Grassland/Savanna Habitats**

The component biotic communities of this habitat are grassland and oak savanna. The grassland communities occur on the valley floors and hillsides where moisture is low and evaporation is high. This habitat type has often been significantly altered by the invasion of grasses and weeds which were introduced and grown in the process of grazing cattle.

In Santa Clara County, there are few endangered species associated with the grassland communities. Avian species such as the bald eagle, peregrine falcon and short-eared owl (described in the section on freshwater habitats) may forage in grasslands. The only other endangered species which are known or expected to inhabit this habitat type are the San Joaquin kit fox and the Bay checkerspot butterfly.

(1) **Grassland** - This community occurs in valley bottoms, on hillsides and on ridgetops where moisture is restricted by runoff and evaporation due either to high temperatures (valleys) or to wind desiccation (hills and ridgetops). This area supports low-growing grasses and herbs, most of which are introduced species. These annuals can tolerate long summer droughts by growing during the spring and early summer and producing seeds which survive the summer, while the parent plant dries and turns brown.

(2) **Oak Savanna** - The Oak Savanna community occurs in foothills along valley edges and is characterized by a mix of grassland and scattered oaks.

The following Valuable Natural Areas are listed in the Inventory of California Natural Areas /1/:

(a) **Arroyo Hondo** - The oak woodland above Calaveras Reservoir is a valuable wildlife habitat. Ouzels (Cinclus Mexicanus) and wood ducks (Aix sponsa) breed here. The permanent stream includes rainbow trout (Salmo Gairdnerii), California roach (Hesperoleucus symmetricus), prickly sculpin (Cottus Asper), and Sacramento sucker (Catostomus occidentalis).

(b) **Guadalupe and Rincon Creek Area** - This area consists of oak woodland and grassland on serpentine soils. It lies west of Los Capitancillos Hills and northwest of Mount Umunhum. This area includes the rare Hamilton thistle (Cirsium Campylon) in a boggy spring area. The Guadalupe and Rincon Creek Area includes the spring-fed tributaries and fork of Guadalupe and Rincon Creeks.

(c) **Henry Coe State Park** - This area exhibits flora and fauna typical of the central Diablo Range, including open oak woodland interspersed with open grassland. The park is important to fish and wildlife and includes intermittent creeks, springs and artificial reservoirs.

(d) **Los Capitancillos Hills (New Almaden Mine)** - This area contains scattered oaks among native and exotic grasses on shale and serpentine soils. It is important bird and wildlife habitat.

(e) **Mission Ridge** - The Mission Ridge area, near Calaveras Reservoir, contains grassland and oak woodland, and is important for bird migration.

(f) **Mount Hamilton** - This area contains the Lick Observatory site. It comprises grassland and oak woodland. Rare plants include Mount Hamilton coreopsis (Coreopsis hamiltonii), Mount Diablo phacelia (Phacelia phacelioides), and rock sanicle (Sanicula saxatilis). There is abundant animal life in the area, including mountain lions.

(g) **Mount Umunhum** - This area exhibits a valley grassland community with diverse vegetation. There are rare species on serpentine soils, including bitterroot (Lewisia rediviva) and rock eriogonum (Eriogonum saxatile). This area provides habitat for migrating birds and wildlife, including the mountain lion.

The following area is listed in the California Natural Diversity Database/2/:

(h) **Serpentine Bunchgrass Natural Community** - This rare community, situated on serpentine soils and consisting of native grasses, is in the Tulare Hills, south of Coyote Creek.

## **Mountain Shrub/Forest Habitat**

The component biotic communities of the Mountain Shrub/Forest Habitat are chaparral, mixed evergreen forest, redwood forest, foothill woodland, and closed-cone pine forest.

(1) **Chaparral** - Chaparral occurs on dry, particularly south- and west-facing, slopes. This community is characterized by shrubs and shrubby trees from three to ten feet tall, with some herbaceous plants growing under them. The chaparral is subject to periodic fires, after which many shrubs recover by stump sprouting.

(2) **Mixed Evergreen Forest** - This community occurs in ravines and on north- and east-facing. Its overstory trees may be over 100 feet tall.

(3) **Redwood Forest** - The redwood forest occurs in the streamsides and ravines of the Santa Cruz Mountains.

(4) **Foothill Woodland** - This community occurs on ridges which form the eastern crest of the Santa Cruz Mountains, and on the ridges and valleys in the western portion of the Diablo range. The overstory is fairly open.

(5) **Closed-Cone Pine Forest** - The closed-cone pine forest occurs at higher elevations of the county (2,000-4,000). This community is found typically in rain-shadow areas. It is characterized by pines and chaparral species adapted to drought, fire and poor soils.

The following Valuable Natural Areas are listed in the Inventory of California Natural Areas/1/:

(a) **Anderson Reservoir Area** - This is an important chaparral community with a few digger pines (Pinus sabiniana). It includes the rare Ceanothus Ferrisae.

(b) **Henry Coe State Park** - This area contains vegetation typical of the central Diablo Range, including pine woodland dominated by Pinus ponderosa, mixed evergreen forest, and chaparral communities. It is an important fish and wildlife habitat which includes springs, intermittent creeks, a stream, and artificial lakes with freshwater marshes along their rims.

(c) **Los Capitancillos Hills (New Almaden Mine)** - This area includes a chaparral community with flora and fauna typical of the Santa Cruz Mountains.

(d) **Monte Bello Ridge** - This community is typical of the eastern slopes of the Santa Cruz Mountains and includes mixed evergreen and redwood forests, and some chaparral. This is an important animal habitat and contains the rare Ceanothus ferrisae in the serpentine chaparral.

(e) **Mount Hamilton** - The Lick Observatory Site is in the Mount Hamilton area, which is covered by thick chaparral and pine forest. Rare plants include Coreopsis Hamiltonii, Phacelia phacelioides, and sanicula saxatilis. The wildlife habitat includes mountain lions. This area contains noteworthy stands of Coulter pine (Pinus coulteri).

(f) **Mount Umunhum** - The Mount Umunhum area features mixed evergreen forest and chaparral. Its vegetation is very diverse. Rare species in serpentine soils include Lewisia rediviva and rock eriogonum (Eriogonum saxatile). There are many species of wildlife and birds, including mountain lions.

(g) **WS Ranch** - The WS Ranch is located in the Santa Cruz Mountains. This area supports extensive mixed-conifer forest as well as some grasslands and chaparral and abundant animals, typical of the region.

## **Man-Altered Habitats**

The component biotic communities in man-altered habitats are rural/agricultural, urban, fallow land, landscaped parklands, and landscaped roadways.

These communities are found mostly in the valley areas and low hills. Species diversity generally is reduced, and non-native plants are common. These areas have reduced habitat value.

(1) **Rural/Agricultural** - Except for the orchards located in the northern part of the county, these communities occur generally in and around the southern Santa Clara Valley. These communities usually consist of row crops, orchards and vineyard, pasture and rangeland, landscaping, and field crops. The valley includes important alluvial agricultural soils, which are very fragile and

protected by vegetation. Prime cropland is on the valley floor. The hills and valleys surrounding the Santa Clara Valley consist of moderately good rangeland.

(2) **Urban** - In urban areas there is only minimal vegetation, usually only landscaping. These areas are concentrated in and around the northern part of the Santa Clara Valley, but include Morgan Hill, Gilroy and San Martin as well.

(3) **Fallow Land** - Fallow land occurs on land used intensively in the past, but which now is abandoned temporarily or permanently. These areas generally occur in and around the southern Santa Clara Valley.

(4) **Landscaped Parklands** - Landscaped parklands generally are found in and around the northern valley. These areas typically are covered with a scattered tree overstory and a closely mowed, irrigated grassland understory.

(5) **Landscaped Roadways** - The vegetation in these areas is generally non-native. Landscaped roadways are concentrated in the valley portion of the county.

## **Endangered Species**

Species with special legal protection are generally termed special status species and are protected by federal law, state law, or both. These species are listed by the federal government as endangered, threatened, or candidate for listing; or by the state of California as endangered, threatened, rare, candidate for listing, or species of special concern. Each of these categories and the laws governing them are described in detail below.

The U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) share responsibility for the management and protection of natural resources in California.

Under separate state and federal legislation, each agency conducts a detailed review and formal consultation process with the lead agency and project sponsor of a project that could affect any plant or animal species listed or proposed as rare, threatened, or endangered by the state or federal government. If a listed species may be affected, the lead agency must initiate a formal consultation with the USFWS or CDFG, as applicable under federal or state law.

(1) **Federal Endangered Species Act** - The federal Endangered Species Act (ESA or the Act) was passed in 1973 and has since been amended and reauthorized. The Act provides a process for listing species as either "endangered" or "threatened" and methods of protecting listed species. The ESA has several major sections, usually referred to by number.

The Act defines as "endangered" any species which is in danger of extinction throughout all or a significant portion of its range (other than certain species of Insecta). A "threatened" species is any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Additional species of concern are divided into three further categories:

- a) Proposed listing as threatened or endangered;
- b) C1 Candidate, enough data are on file to support the federal listing; and
- c) C2 Candidate, threat and/or distribution data are sufficient to support federal listing.

The Act dictates that all federal departments and agencies shall use their authority to conserve endangered and threatened species. Procedural rulemakings provide for interagency cooperation with USFWS in meeting the goals of Act.

**(2) California Endangered Species Act** - The California Department of Fish and Game (CDFG) is the state's trustee agency for endangered and threatened species under the California Environmental Quality Act (CEQA). Section 15065(a) of the CEQA Guidelines declares that impacts on rare or endangered plants or animals are significant.

The passage of the California Endangered Species Act (CESA) in 1984 gave CDFG a clearly defined responsibility to review proposed projects for impacts on California listed rare, threatened and endangered species. CESA defines California endangered species as those whose continued existence is jeopardized. California rare or threatened species, although not presently threatened with extinction, are in such small numbers throughout their range that they may become endangered if their environments change or deteriorate.

CESA established as policy that State agencies should not approve projects that would jeopardize listed species or cause the destruction or adverse modification of essential habitat for listed species.

### **(3) Santa Clara County Endangered Species -**

A review of the California Natural Diversity Database has revealed a number of Federal Candidate 2 species in Santa Clara County.<sup>/3/</sup> These are species that have characteristics which may warrant their listing as "threatened or endangered"; however, substantial information needed to support a ruling is lacking. These species are listed and described in Table 12.7.2.

#### **Footnotes:**

/1/ Leslie Hood, Editor, California Natural Areas Coordinating Council, 1982, Inventory of California Natural Areas, Volume XIII, Santa Clara - Sis Riyou

/2/ Elaine Hanby, Biologist, California Natural Diversity Database, Telephone Conversation, April 1, 1988.

/3/ Environmental Science Associates, December 1974, Environmental Impact Report, San Felipe Water Distribution System, SCVWD.

**TABLE 12.7.1: SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR IN THE SANTA CLARA COUNTY STUDY AREA**

<u>Species Name</u>	<u>Status /a/</u>		
	<u>USFWS</u>	<u>CDFG</u>	<u>SCC</u>
<b>Baylands</b>			
* California clapper rail	E	E	E
<u>Rallus longirostris obsoletus</u>			
* California least tern	E	E	E
<u>Sterna antillarum browni</u>			
* California brown pelican	E	E	E
<u>Pelecanus occidentalis californicus</u>			
* California black rail	C2	T	R
<u>Laterallus jamaicensis</u>			
* Salt marsh yellowthroat	C2	-	-
<u>Geothlypis trichas</u>			
* Snowy plover	C2	-	-
<u>Charadrius alexandrinus</u>			
* Salt marsh song sparrow	-	-	R
<u>Melospiza melodia</u>			
* Salt marsh harvest mouse	E	E	E
<u>Reithrontomys raviventris</u>			
* Salt marsh wandering shrew	-	SCS	R
<u>Sorex vagrans haliocoetes</u>			
* San Francisco forktail damselfly	C1	-	-
<u>Ischnura gemina</u>			
<b>Freshwater</b>			
* California tiger salamander	C2	-	-
<u>Ambystoma tigrinum californiense</u>			
* Southern bald eagle	E	E	E
<u>Haliaeetus leucocephalus leucocephalus</u>			
* Peregrine falcon	E	E	-
<u>Falco peregrinus</u>			
* Least Bell's vireo	E	E	-
<u>Vireo bellii pusillus</u>			
* Short-eared owl	SCS	-	-
<u>Asio flammeus</u>			
* Bank swallow	SCS	-	-
<u>Riparia riparia</u>			
<b>Grasslands/Savanna</b>			
* San Joaquin kit fox	T	E	E
<u>Valpes macrotis mutica</u>			
* Bay checkerspot butterfly			
<u>Euphydryas editha bayensis</u>	-	PE	-

/a/ USFWS: U.S. Fish and Wildlife status (Endangered Species Act): E = endangered; PE = proposed as endangered; C1 = sufficient data to support listing; C2 = candidate list 2, data being sought -- current data are insufficient to support listing; C3 = too widespread and/or not threatened (Federal Register 50:39526-39583).

CDFG: California Department of Fish and Game status (California Endangered Species Act): T = threatened; E = endangered; R = rare; CSC = species of special concern (CDFG, 1987).

SCC: Santa Clara County: E = endangered; R = rare.

SOURCE: Environmental Science Associates, Inc.

**TABLE 12.7.2: FEDERAL "CANDIDATE 2" PLANT SPECIES FOUND IN SANTA CLARA COUNTY**

<u>Common Name</u>	<u>Scientific Name</u>	<u>Habitat</u>	<u>Location</u>
Caper-fruited Tropidocarpum	Tropidocarpum capparideum	Valley grasslands below 500 feet, alkaline soils	1) Saratoga area 2) Foothills near Stanford University
Contra Costa Goldfields	Lasthenia conjugens	Grasslands	1) San Jose area
Coyote Ceanothus	Ceanothus ferrisiae	Serpentine slopes 300-700 feet elevation	1) Madrone area 2) Pigeon Point 3) Madrone Station area
Fountain Thistle	Cirsium fontinale var. fontinale	Wet spots in clay overlying serpentine	1) Alamitos Creek near Hacienda School
Metcalf Canyon Jewel Flower	Streptanthus albidus	Rocky soil, serpentine hills	1) Lower Soda Springs Cyn. 2) N of Metcalf Cyn. Road above Coyote Creek 3) NE of Perry 4) Anderson Lake area 5) South of San Jose , above Cincas Creek
Mount Hamilton Thistle	Cirsium campylon	Serpentine grasslands, streams, spring seepages, boggy areas	1) SW of Guadalupe Res. 2) N of Metcal Cyn., E. of Santa Clara Valley 3) E of Encinal School, Santa Clara Valley 4) Anderson Lake area 5) SE of Metcalf 6) S of Shingle Valley, E of Santa Clara Valley 7) E of Perry, Santa Clara Valley 8) NE of Edendale 9) Santa Teresa Hills 10) Alamitos Creek 11) E of Hacienda 12) SE of intersection of Almaden Road and McKean Road
Point Reyes Birds Beak	Cordylanthus maritimus ssp. palustris	Coastal salt marshes	1) Near Alviso 2) Palo Alto area]
Showy Indian Clover	Trifolium amoenum	Swales, grassy valleys, low hills	1) Gilroy area

SOURCE: Elaine Hamby, California Department of Fish and Game, telephone conversation, April 4, 1988.

## **12-7(3) *Hydrology and Water Quality***

### **Surface Hydrology**

The Santa Clara Valley consists of an elongated structural trough, bounded on the east by the Diablo Range (maximum elevation of 4,280 feet msl at Mount Hamilton) and on the west by the Santa Cruz Mountains (maximum elevation of 3,791 feet msl at Loma Prieta). the valley has a length of about 43 miles in the county and a width varying from two to 16 miles; it is oriented northwest-southeast.

A drainage divide lies across the valley at about 350 feet of elevation near Morgan Hill. North of Morgan Hill, runoff in the valley drains northward to San Francisco Bay. The major streams draining the northern valley are Coyote Creek and the Guadalupe River, which both discharge into southern San Francisco Bay near Alviso. The southern Santa Clara Valley drains southward into the Pajaro River via Llagas and Uvas-Carnadero Creeks. The Pajaro River empties into Monterey Bay near Watsonville.

The Santa Cruz - Santa Clara county line is located along the drainage divide between the Santa Clara Valley to the east and Monterey Bay to the west. To the northwest of Loma Prieta, a number of short creeks flow northward or eastward from the Santa Cruz Mountains into the Santa Clara Valley. Alamitos and Los Gatos Creeks rise in the Santa Cruz Mountains and are tributaries of the Guadalupe River. A number of other streams in northwestern Santa Clara County drain directly from the Santa Cruz Mountains into San Francisco Bay. They include Adobe, Permanente, and Stevens Creek and Guadalupe Slough and its tributaries. Southeast of Loma Prieta, the Santa Cruz Mountains are drained by Uvas, Tar, and Pescadero Creeks into the Pajaro River and Monterey Bay.

The eastern boundary of Santa Clara County (with Stanislaus and Merced Counties) is on the drainage divide between San Francisco and Monterey Bays to the west and the San Joaquin Valley to the east. The northern portion of the Diablo Range within Santa Clara County drains northward to San Francisco Bay through Niles Canyon. Major creeks draining that area include Alameda, Sweetwater and Isabel Creeks, and Arroyo Hondo, Mocho, and Valley. The portion of the Diablo Range east of Morgan Hill drains into Coyote Creek and, therefore, San Francisco Bay. A small portion of the southernmost Diablo Range is within the watershed of Pacheco Creek, which is a tributary of the Pajaro River. The Pajaro River empties into Monterey Bay.

### **Flooding**

The potential for flooding hazards varies significantly due to local conditions in the different portions of the county. Near San Francisco Bay, large areas have been diked to create salt evaporation ponds, which are subject to flooding in the event of dike failure or extremely high tides. Areas adjacent to the salt evaporation ponds are also subject to tidal flooding, and also flooding hazard from creeks during large storms. The northern Santa Clara Valley is heavily urbanized. Many streams have been placed in man-made channels with capacity for the 100-year storm; however, local flood hazards exist. The southern valley below Morgan Hill is subject to high flood hazards due to overflow by Llagas and Uvas Creeks.

In general, the streams of the Diablo Range and the Santa Cruz Mountains flow through narrow steep-sided canyons. Floodwaters from those streams affect only narrow areas in the canyon bottoms.

The Federal Insurance Administration has prepared Flood Insurance Rate Maps or Flood Hazard Boundary Maps for all the incorporated towns and cities of the county and for unincorporated

areas. Those maps delineate the 100-year floodplains of major streams in the area. Areas subject to substantial coastal flooding are also shown. /1/

## **Storm Drains**

The urbanized northern portion of the county is served by an extensive storm drain system. Within incorporated areas, storm drains are maintained by the local government. In unincorporated portions of the county, the county maintains storm drains. Additionally, storm drainage facilities within the right of way of state roads are maintained by Caltrans. Plans for storm drainage facilities are available from the governmental organization responsible for upkeep of the storm drains.

## **Groundwater**

The Diablo Range and Santa Cruz Mountains are composed primarily of sedimentary and intrusive rocks which do not bear water in substantial quantities. Some groundwater occurs in fractures and joints and is generally of good quality. At deep levels, the groundwater may be saline. /2/

The Santa Clara Valley is underlain by unconsolidated bay and alluvial deposits which contain substantial amounts of groundwater. These sediments include clays, silts, sands and gravels with a maximum thickness of 1,500 feet. The valley contains three groundwater subbasins - the Santa Clara, Coyote, and Llagas subbasins. The boundary between the Santa Clara and Coyote subbasins is at the narrowest portion of the valley at Coyote. The boundary between the Coyote and Llagas subbasins is at the same location as the drainage divide at Morgan Hill. /2/

The Santa Clara subbasin is recharged principally from elevated gravels and sand along the edge of the basin. A shallow aquifer occurs at about 10 to 150 feet of depth in the basin interior. An artesian aquifer is also present at a depth of greater than 150 feet. The subbasin contains an estimated 3,225,000 acre-feet of water between depths of 10 and 310 feet. /2/ Water flows from recharge areas on the eastern and western fringes of the basin toward the basin center and then toward the bay. /2/ Hundreds of wells for municipal, industrial, residential and agricultural use have been drilled in this subbasin.

The Coyote basin contains water under unconfined conditions at depths of less than 500 feet. The principal recharge occurs through percolation through the streambed of Coyote Creek. The storage capacity of the basin is estimated at 76,000 acre-feet. Water flow direction is toward the northwest. At the northern boundary of the subbasin, the coyote Narrows, groundwater is forced to the surface by a rise in basin floor level and enters the channel of Coyote Creek. The subbasin has also been used to supply many different types of wells. /2/

The Llagas subbasin contains water under both confined and unconfined conditions. Between Gilroy and Morgan Hill, some zones of confinement exist. South of Gilroy, the aquifer contains confined groundwater at depth. This subbasin has an estimated storage capacity of about 475,000 acre-feet. Recharge occurs along the upper portions of Llagas and Uvas Creeks, to the west of the valley. Groundwater flows toward the south. Many wells have been drilled in this subbasin and have caused substantial drawdowns of water level, because the basin has limited recharge capacity. /2/

## **Water Quality**

Surface water of Santa Clara County is generally hard to very hard. Water from drainage basins in the Santa Cruz Mountains generally has less total dissolved solids, TDS, than water from the Diablo Range. TDS values generally range from 150 to 250 milligrams per liter (mg/l). /2/ In 1979, the Santa Clara Valley Water District (SCVWD) and the U.S. Geological Survey began a

monitoring program for Los Gatos, Llagas, and Coyote Creeks and the Guadalupe River. That data is available in reports from the USGS. /3/

Groundwater of the Santa Clara, Coyote and Llagas subbasins is of calcium-magnesium bicarbonate type and is commonly hard. Near San Francisco Bay, elevated sodium levels have been recorded, possibly as a result of saltwater intrusion. TDS levels are generally high throughout the three basins, but are particularly elevated near the base of the Diablo Range.

Groundwater of the Santa Clara Valley has been subject to contamination by nitrates, hydrocarbons and industrial chemicals. As of September 1986, 106 industrial sites in the valley were being investigated for possible contamination by volatile organics (used as industrial solvents) and fuels. Additionally, 489 sites were being investigated for possible fuel leaks. The majority of these affect the Santa Clara subbasin. In the Llagas subbasin, nitrate contamination has resulted from use of fertilizers in agricultural operation and possibly also from septic tank effluent. It has been estimated that 2.6% of the land area of the Santa Clara subbasin has suffered contamination by volatile organics, mostly affecting only the upper unconfined aquifer. In three locations, Mountain View, Santa Clara, and the Evergreen area of San Jose, contamination of the deep confined aquifer has occurred. /2/ See Chapter 3 (pp. 3-14 to 17) of the HWMP for a discussion of groundwater contamination by hazardous wastes.

## FOOTNOTES

/1/ Federal Insurance Administration, National Flood Insurance Program Community Status Book, September 30, 1985.

Santa Clara Valley Water District, Groundwater Management in Santa Clara Valley, April, 1987.

M.A. Sylvester, Water Quality and Flow of Streams in Santa Clara Valley, Santa Clara County, California, 1979-1981, USGS, 1986.

## **12-7(4)    *Transportation***

### **Santa Clara Valley Corridor**

This corridor stretches from the San Benito County line in the south, northwards some 50 miles to the southern tip of San Francisco Bay. It includes the communities of Gilroy and Morgan Hill in the south, and the extensive and rapidly growing Silicon Valley, the region's most intensively developed light industrial and high technology electronics area, in the north. Ninety percent of the population resides in the northern third of the corridor, which includes San Jose, the Bay Area's second largest city. The urban area is served by an extensive network of expressways and freeways.

The northwest section of Santa Clara County has a high density of key industries, particularly semi-conductors and related devices, electronic computing equipment and electronic components. This area constitutes the well known Silicon Valley.

There are several major highway routes through this area. Interstate 680 (I-680), entering the county from Alameda County, receives heavy vehicle use. U.S. Route 101 (U.S. 101) has high use from San Mateo County to the north. I-280, I-880, State Route 17 (SR 17) and SR 85 receive less traffic, but also run through the Silicon Valley. All of these highways receive considerable automobile as well as truck traffic. To the north, U.S. 101 and SR 152 have a high percentage of

truck traffic, indicating their major role as avenues of material transfer out of the region. Average daily traffic and truck traffic are shown in Table 12.7.3.

Other main material transportation corridors through the county are several PG&E gas pipelines, other industrial pipelines, and the Southern Pacific railway. These facilities are concentrated in the Silicon Valley region and generally follow U.S 101 through the county. The San Jose Municipal Airport is also located in the area.

Hazardous materials in this county are centered in the Silicon Valley Sector. Transportation corridors servicing this area generally run north and south through the county, with spurs serving areas not on the direct routes.

A major issue and concern in the corridor is **traffic congestion**. Rapid employment growth, particularly in the northern section of the corridor and to the east of U.S. 101, combined with only limited improvements to the highway system, have caused the highways to be heavily used, especially at peak hours; congestion will increase in response to continued growth in the corridor's manufacturing and high-technology industries, which will continue to attract many workers from adjacent corridors.

Growth trends and commute patterns for the Santa Clara Valley corridor include:

- The corridor ranks first in the region in population. By the year 2000, the current population of about 1,400,000 is expected to have grown to more than 1,600,000, a 15 percent increase from 1985.
- The corridor ranks second behind the West Bay Corridor (San Francisco to Santa Clara County) in total employment (811,000 employees). However, it is expected that by 2005 these rankings will be reversed. The Santa Clara Valley Corridor is expected to have a total employment of 1,190,000, representing a 47% increase from 1985.
- Population densities will remain constant at 21 persons per (residential) acre.
- Employment densities will change significantly from an average of 25 employees per acre in 1985 to 31 employees per acre by 2005.
- In 1980, 93% of the 643,000 resident commuters had jobs within the corridor. Five percent of the resident commuters worked in the West Bay Corridor.
- In 1980, of the 67,900 commute trips into the corridor each work day, 54% originated in the West Bay Corridor, and 36% originated in the East Bay Corridor (Solano County through southern Alameda County). By 2005, in-commuting is expected to increase significantly -- especially from Alameda County. I-880, which enters Santa Clara County from Alameda County, then traverses the county to Santa Cruz County in the south, is a regionally significant highway carrying a high volume of inter-county commuters as well as through truck traffic. Adjacent areas in San Jose are undergoing rapid industrial development, and in Milpitas are undergoing rapid industrial and residential development, with increasing traffic demands anticipated to be placed on this route in the coming years.

The following major highways -- interstates, state routes, and county expressways -- serve Santa Clara County:

- North-South: I-280, I-680, I-880, State Routes 17, 85, 87, and U.S. 101.
- East-West: I-280, State Routes 237, 152.

- County Expressways: Lawrence, Montague, San Tomas, Page Mill, Oregon, Central, Foothill, Capitol, Almaden.

## Road Improvements

Transportation improvements proposed by the **Metropolitan Transportation Commission** for the Santa Clara Valley include: /1/

- (1) Guadalupe Corridor
  - On SR 85, construct freeway from SR 87 (Guadalupe Freeway) to Miyuki Drive.
  - On SR 87:
    - Construct freeway from I-280 to Curtner;
    - Construct freeway from Julian to U.S. 101;
    - Construct freeway from Curtner to SR 85.
- (2) West Valley Corridor (SR 85): Widen the existing portion of SR 85 between Stevens Creek Boulevard and U.S. 101.
- (3) I-280: Upgrade I-280 through a combination of preferential lanes, auxiliary lanes, and ramp controls at selected locations between Leland Avenue in San Jose and Magdalena Avenue in Los Altos.
- (4) U.S. 101:
  - Widen from the San Mateo County line to Bernal Road in South San Jose;
  - Provide improvements at the Lawrence Expressway Interchange;
  - Widen between the Lawrence Expressway and the San Mateo County line;
  - Add auxiliary lanes from the San Mateo County line to I0280 in the southbound direction.
- (5) SR 237 Freeway: Upgrade to a six-lane freeway between I-880 (SR 17) and SR 85.
- (6) I-880: Widen from four to six lanes through Santa Clara County north from Montague Expressway to SR 262.
- (7) SR 82:
  - Realign from Scott Boulevard to the University of Santa Clara;
  - Widen from four to six lanes from Lafayette Street to Scott Boulevard.
- (8) SR 152 (Pacheco Pass); Widen from two to four lanes between Bells Station and the junction with SR 156.

**TABLE 12.7.3: TRAFFIC VOLUMES ON FEDERAL AND STATE HIGHWAYS IN SANTA CLARA COUNTY FOR 1985 THROUGH 1987**

<u>Route</u>	<u>Segment Limits</u>	<u>Length (Mi)</u>	<u>Average Daily Traffic</u> <u>All Vehicles/a/ Trucks/b/</u>		<u>Million Vehicle</u> <u>Miles (MVM)/c/</u>	<u>% of Segment</u> <u>Congested</u>
SR-17	SR-9 to I-280	6.87	117,000	6,300	880	50
SR-85	I-280 to US-101	5.42	73,000	5,000	432	50
US-101	South of I-280	34.84	63,000	6,2000	2410	15
US-101	I-280 to I-880	3.43	129,000	10,200	486	50
US-101	I-880 to SR-237	7.83	144,000	8,000	1235	50
US-101	SR-237 to SR-85	1.97	134,000	8,600	288	25
US-101	North of SR-85	4.45	151,000	12,300	736	50
SR-152	West of US-101	10.28	6,000	600	69	0
SR-152	East of US-101	25.13	15,000	2,700	398	0
SR-237	West of US-101	2.56	40,000	1,400	112	100
SR-237	US-101 to I-880	6.86	61,000	4,600	418	75
SR-237	I-880 to I-680	1.74	44,000	2,700	83	0
I-280	US-101 to SR-17	5.41	161,000	5,700	950	0
I-280	SR-17 to SR-85	6.71	162,000	4,800	1194	100
I-280	West of SR-85	9.89	85,000	3,100	922	0
I-680	US-101 to SR-237	7.65	106,000	5,000	883	50
I-680	North of SR-237	2.29	88,000	1,800	221	100
I-880	I-280 to US-101	4.08	132,000	9,900	588	100
I-880	US-101 to SR-237	4.34	92,000	11,200	146	50
I-880	North of SR-237	2.08	114,000	13,800	260	100

**NOTES**

/a/ At major cross street, per TASAS

/b/ Average of CALTRANS' count stations

/c/ Because the data cover three years, the million vehicle miles traveled column is thrice the annual value.

**SOURCE:** State of California, Department of Transportation, March 1988, TASAS printout; State of California Department of Transportation, July 1987, "1986 Annual Average Daily Truck Traffic on the California State Highway System"; and Metropolitan Transportation Commission, May 1987, "Recurrent Congestion Locations, Typical Weekday."

**Transportation 2000**, Santa Clara County's long range transportation plan, was completed in 1987 and will guide the county's transportation system to the year 2000. Its purpose is to provide an integrated intra-county transportation system allowing for convenient and timely travel, including highways, transit, ride-sharing and related land use strategies, so that in the future a more balanced transportation system will offer greater choice.

The Transportation 2000 (T2000) Plan Program of Santa Clara County has addressed the following improvements to the highways system: /2/

- Completion of Measure "A" program for U.S. 101, SR 85 and SR 237. With Santa Clara County voter approval of Measure A, sales tax funding for three highway projects has been provided:
  - Widening of U.S. 101 to eight lanes between the San Mateo County line and Bernal Road;
  - Construction of SR 85 in the West Valley corridor and widening of existing SR 85 north of I-280 from four to six lanes; and
  - Upgrading of SR 237 to a freeway.
- Emphasis on commuter lanes and bottleneck improvements including new and upgraded interchanges.
- Capacity improvements in U.S. 101 and Fremont/South Bay Corridors.
- Operational improvements including signal synchronization and freeway surveillance.
- Commuter-related improvements are also proposed.

## **Transportation Regulations Regarding Hazardous Waste**

(1) **Rules and Regulations** - Federal and State law require the licensing of transporters of hazardous waste. The State of California registers transportation companies annually, as well as the vehicles used for transporting hazardous materials. The State also inspects vehicles and provides driver training, certification, and registration.

The Hazardous Waste Manifest System tracks hazardous waste flow. Each hazardous waste manifest certifies that wastes are described accurately, and tracks wastes from the generator to their place of treatment and final disposal. The State of California provides information for recommended hauling, disposal/treatment, and emergency response procedures.

Haulers are responsible for labeling waste containers and placarding vehicle, using U.S. Department of Transportation (DOT) standard labels and placards. Labels and placards identify the truck's contents as hazardous wastes and provide information for emergency response.

The U.S. Department of Transportation (DOT) requires that any accident or incident involving the unintentional release of hazardous materials be reported. Recent assessments of hazardous spill reporting indicate, however, that hazardous spills may be under-reported, at least on a nationwide level. The analysis was based on comparing reported incidents in various federal databases. /3/

(2) **Federal Jurisdictional Problems** - The Interstate Commerce Commission (ICC) does not regulate intrastate commerce. Under the Hazardous Materials Transportation Act (HMTA), DOT is authorized to regulate all materials shipments (and does so for rail, air and water). /4/ However, DOT has chosen to exclude intrastate highway transport specifically from hazardous material regulatory coverage. /3/

On the other hand, DOT has acted by filing "inconsistency rulings" on intrastate highway transport when DOT feels a city is being too restrictive in prohibiting transport over its roads.

The federal Environmental Protection Agency (EPA) has adopted some DOT regulations, but a problem exists, as EPA and DOT hazardous waste classifications are different. The federal Occupational Safety and Health Administration (OSHA) cannot become involved if another federal agency already is exercising regulatory authority.

Other federal agencies involved in this fragmented approach to the regulation of hazardous waste transportation include the National Transportation Safety Board (NTSB), which has investigated accidents, and the Department of Defense (DOD), which has its own regulations for hazardous materials transportation. /3/

**(3) State and Local Jurisdiction** - Jurisdiction over the transportation of hazardous materials generally is exercised at the state and local levels of government. State jurisdiction is exercised through Title 26 of the California Administrative Code (CAC).

The State Hazardous Materials Enforcement Development (SHMED) Program was poorly funded and expired in 1986. /3/ In its place, the Cooperative Hazardous Materials Enforcement Development (COHMED) Program was established by DOT to assist states in enforcing hazardous materials programs. Highways transport falls under the Motor Carrier Safety Assistance Program (MCSAP), a DOT program in which California participates. /3/

The Federal Office of Technology Assessment (OTA) singles out California's licensing program as a "strong" state program and highlighted it in its report. /2/ There are 6,400 companies licensed to haul hazardous materials and wastes in California. Hazardous wastes, however, are not covered by California notification requirements. (Only 9 states, 3 cities, and 1 bridge had notification requirements for hazardous wastes as of 1985. /3/)

Title 26 of the CAC provides the legal mandate for California's regulation of the transportation of hazardous materials and wastes. /5/ Shipping manifests are required for transporting hazardous materials. Labeling and placarding are required for all hazardous materials shipped in the State. /2/

Any release or other incident occurring in the transportation of hazardous waste must be reported. Sixteen hours of training are required for the operators of vehicles or handlers of containers used in transporting hazardous waste. Also, for Hazardous Wastes, an approved safety plan is required.

**(4) Route Control** - Routing Requirements for non-radioactive materials are set out in 49CFR Sect. 396.9(a), a general statement directing drivers of vehicles carrying non-radioactive hazardous material to use routes avoiding heavily populated areas, tunnels, narrow streets, or alleys. /4/ DOT has published two guideline documents emphasizing that a broad selection of community and industry members need to be involved in route selection procedures. Although routing requirements normally fall under state or local control, if DOT determines that a state or local regulation is incompatible with HMTA, it can issue an inconsistency ruling. These rulings have been given major consideration in court challenges to block the state or local regulation.

In order for state and local regulations to be found consistent with the HMTA, they must:

- Increase safety;
- Be enacted in consultation with neighboring jurisdictions; and
- Pertain to traffic control and safety hazards peculiar to a local area.

Local regulation was supported in a New York City case (although involving nuclear waste), in which the appellate court found that city regulations promoted safety, and that the route around the city was a "practical alternative". The U.S. Supreme Court declined to hear the case. /3/

Special regulations pertain to the shipment of certain hazardous materials. Explosives and cargo tanks containing fuming nitric acid, anhydrous hydrazine, or liquid nitrogen tetroxide must:

- Travel only on highways designated in the code or local roads at the discretion of police or fire departments. In Santa Clara County, the designated routes are identical to the state and federal highway system, except that SR 237 west of U.S. 101 is not included.
- Stop only at safe stopping places where vehicles must not be left unattended, or safe parking places where vehicles may be left unattended. Safe stopping places ring the Bay Area and also may be inspection stations. In or near Santa Clara County, safe stopping places are located on SR 17, one mile south of the Santa Clara and at the Santa Cruz county line, and, for southbound trucks only, on U.S. 101 at the north edge of the City of Gilroy. /6/

A check of the cities in Santa Clara County indicates than none of those cities exercises any control of hazardous waste transportation other than that prescribed by the State law. /7/

#### FOOTNOTES

- /1/ Metropolitan Transportation Commission, December 1987, "Regional Transportation Plan for the nine-county San Francisco Bay Area."
- /2/ Santa Clara County Transportation Agency, February 1988, "Transportation 2000, An Implementation Strategy for the Transportation 2000 Plan," Draft Phase III Summary Report.
- /3/ U.S. Congress, Office of Technology Assessment, July, 1986, "Transportation of Hazardous Materials", Report OTA-SET-304.
- /4/ Code of Federal Regulations, Title 49, Especially Sections 100-199.
- /5/ California Administrative Code, Title 26, Especially Sections 13-1161, 13-1161.2, 13-1162, 13-1166, and 13-1176. Also California Health and Safety Code, 25169.3.
- /6/ California Administrative Code, Title 26, sect.13-1150ff.
- /7/ City of San Jose, Code Enforcement; cities of Mountain View, Santa Clara, Milpitas, Saratoga, Sunnyvale, Campbell, Cupertino, Los Altos and Los Altos Hills, Fire Departments; City of Palo Alto, Police Department; and County of Santa Clara, Sheriff's Department, telephone conversations, April 1 - 5, 1988.

## **12-7(5)      *Geology and Soils***

### **Topography**

Santa Clara County is about 35 miles wide (east-west) and over 40 miles long (north-south). It is at the southern end of San Francisco Bay. The central portion of the county contains the elongate Santa Clara Valley, which is oriented northwest-southeast and drains into San Francisco and

Monterey Bays. The valley is flanked on the east by the Diablo Range and on the west by the Santa Cruz Mountains.

The eastern half of the county includes ridges and valleys of the Diablo Range, which are generally oriented northwest-southeast. Ridge crests have elevations of 2,000 to 4,000 feet above mean sea level (msl). The highest point is Mount Hamilton, at 4,280 feet msl.

The Santa Cruz Mountains cover the extreme western portion of the county and are also oriented northwest-southeast. The highest point is Loma Prieta, at 3,791 feet msl. These mountains generally have one main ridge along the county border, in contrast to the numerous ridges and valleys of The Diablo Range in the east county.

The Santa Clara Valley varies in width from about 16 miles at its north end, adjacent to San Francisco Bay, to about two miles at Coyote, about 12 miles south of Downtown San Jose. The southernmost two-thirds of the valley is generally narrow, ranging up to six miles in width. The valley bottom is generally flat, with slope gradients of less than five percent, except where scattered small hills and stream courses provide relief. /1/

## Geology

Santa Clara County is composed of folded and faulted sedimentary and volcanic rocks of the Central California Coast Ranges and more recent alluvial and Bay deposits in lower areas. The Diablo Range includes primarily sandstone, shale, chert and serpentine of the Franciscan Assemblage of Jurassic to Cretaceous age (208 to 66 million years ago). Lesser amounts of Monterey formation shale, Santa Clara formation gravels and sands, and Briones formation sandstone of Tertiary age (66 to 2 million years ago) are also present. /2/

The active Calaveras and Hayward faults generally form the western boundary of the Diablo Range in Santa Clara County. The Santa Clara Valley is underlain by Quaternary-age (less than two million years old) alluvial deposits, which are up to several hundred feet deep. At the extreme northern end of the valley, recent bay deposits are present. The Santa Cruz Mountains are composed primarily of Franciscan Assemblage sandstone, shale, chert and serpentine with lesser amounts of Santa Clara, Purisima, San Lorenzo, Monterey, and Vaqueros formations of Tertiary age also occurring. The active San Andreas fault passes through the center of the Santa Cruz Mountains along their long axis.

The Franciscan Assemblage was deposited originally in a deep marine trench off the California Coast. As a result of convergence of the Pacific and North American plates, those sediments were folded, faulted and accreted onto the continental margin, forming the Coast Ranges. During the Tertiary period, marine and non-marine sediments were deposited in portions of the Coast ranges, creating the Tertiary formations mentioned above. Also during the Tertiary period, the Calaveras and Hayward faults divided the county into eastern and western blocks. The western block tilted and its low-lying eastern portion formed the Santa Clara Valley, which has since accumulated alluvial deposits.

## Seismicity

The San Francisco Bay region is an area of high seismicity. The active San Andreas, Calaveras and Hayward faults and the potentially active Sargent and Shannon faults cross Santa Clara County. Those faults could generate earthquakes which would result in strong groundshaking. The maximum bedrock acceleration in the county due to seismic activity is estimated at greater than 0.5g, where g is the acceleration due to gravity. /3/ In general, groundshaking would be more severe in areas underlain by loose unconsolidated soils than in areas underlain by bedrock. The U.S.G.S. has published a map, MF-709, estimating the intensity of groundshaking in various

portions of the county expected during a large earthquake on the San Andreas or Hayward faults./4/

Ground surface rupture could occur along fault traces during a major earthquake. This hazard is most likely along the traces of known active or potentially active faults. The California Division of Mines and Geology (CDMG) has mapped the surface traces of such faults and designated special studies zones along those traces, as required by the Alquist-Priolo Special Studies Act of 1972. Special studies zones have been mapped on U.S.G.S 7.5 minute topographic quadrangles. The following quadrangles contain special studies zones within Santa Clara County: Milpitas, Calaveras Reservoir, Mt. Day, Exlar Mountain, Mindego Hill, Mt. Sizer, Laurel, Gilroy, Gilroy Hot Springs, Watsonville, Chittenden, and San Felipe./5/ Although unlikely, it is possible that surface rupture could occur along an unknown fault trace.

Secondary seismic hazards include liquefaction, settlement, lateral spreading, lurching, landslides, tsunamis and seiches. Liquefaction affects loose, saturated sands and silts with a low clay content. Seismic groundshaking causes elevated pore pressures within the groundwater and loss of strength by the sand or silt. Lateral spreading and massive failure can result. Alluvial deposits of the Santa Clara Valley which have a high groundwater table may be susceptible to liquefaction. Additionally, loose river deposits in the valleys of the Santa Cruz Mountains and the Diablo Range may be locally prone to liquefaction. Settlement and lateral spreading affect loose soils, especially those with high clay content and shallow groundwater. The Bay muds at the extreme northern end of the county are extremely susceptible to these hazards.

Differential settlement can cause severe damage to structures. Lurching, the horizontal movement of soils, is likely along river channels, particularly where tall vertical banks exist, and earthen embankments, such as poorly built road fills.

A tsunami is an earthquake-induced ocean wave which can have a runup of several to tens of feet along shorelines. The Bay shore of Santa Clara County is subject to minor hazards from a tsunami, as substantial attenuation of run up would occur for a tsunami entering the Golden Gate. Seiches are oscillatory waves occurring in a closed water body due to seismic activity. Experience from the 1906 earthquake indicates that a substantial seiche is unlikely in the Bay. Reservoirs and lakes in the county could be prone to seiche formation.

The CDMG has prepared a study of potential seismic hazards in Santa Clara county, which analyzes the likelihood of secondary seismic hazards in various parts of the county./6/ the Federal Insurance Administration has conducted a Type 16 Flood Insurance Study for Tsunamis in San Francisco Bay that includes detailed maps of projected tsunami runup./7/

## **Slope Instability**

Unstable hillsides occur in steeper portions of the Santa Cruz Mountains and the Diablo Range. Slope failures range from relatively slow soil creep to catastrophic debris flows and rock avalanches. Slope failure can result from natural causes, such as undercutting of hillsides by streams and accumulation of thick colluvial mantles in steep mountain swales, and also from human causes, including oversteepening of hillsides and removal of vegetative cover. The greatest probability of slope failure is in areas of existing and past landslide activity. Temporarily dormant landslide masses and deposits can be reactivated by heavy rainfall, earthquakes, construction activity, etc. However, landslides also affect areas without a history of slope failure.

## **Mineral Resources**

The CDMG, as required by the Surface Mining and Reclamation Act of 1975, has instituted a program to identify mineral deposits of regional and state-wide significance. The San Francisco

Bay region, including Santa Clara County, has been mapped for aggregate resources. That mapping defined areas of regionally significant mineral deposits (MRZ-3 and MRZ-4), and areas of scientifically significant minerals (SZ). /10/

## **Soils**

The soils of Santa Clara County can be divided into five broad categories. Group I soils have formed on mud at the bay's edge and are affected by tidal action. Group II soils are located on poorly drained alluvium generally north of downtown San Jose and southeast of Gilroy. Group III soils cover the majority of the Santa Clara Valley. Those soils have formed on alluvial plains and fans and are well to somewhat excessively drained. Group IV soils are located at the edges of the Santa Clara Valley on alluvial terraces and fans. The subsoil is slowly to very slowly permeable. Group V soils have formed on bedrock of the Santa Cruz Mountains and the Diablo Range and are usually well drained. The erosion hazard of upland soil is moderate to high./8/

The U.S. Soil Conservation Service mapped soils of the county in a 1968 report, Soils of Santa Clara County, that examined land capability, hydrologic, vegetative, and engineering properties of soils./8/ A subsequent report prepared by the SCS in 1974 mapped soils of the eastern portion of the county./9/ See Chapter 3 (pp. 3-14 to 3-17) of the HWMP for a discussion of soil contamination by hazardous wastes.

## **Prime Agricultural Lands**

Santa Clara soil and climate have the potential to offer an outstanding environment for food production due to:

- A mild, sea-modified climate;
- Long growing season;
- Rich, deep alluvial soil;
- Abundant water; and
- Nearby markets.

County agricultural land has the potential (and has been used) to produce intensively irrigated crops including pears, apricots, prunes, cherries, strawberries, vegetables, and other specialty crops.

Since World War II, agriculture has lost over 200 square miles (128,000 acres) to urban development, such as subdivisions and shopping centers. Today, local agriculture still covers about 264,000 acres of county land, most of which (215,000 acres) are range lands of the Diablo and Santa Cruz Mountains. /11/ Only a fraction of the Valley farmland that once was available for cultivated crops remains, 85 percent of which is confined to the southern Santa Clara Valley from just north of Morgan Hill to just south to Gilroy.

Today's crop list includes over 30 different food crops, plus livestock and various livestock feed products under commercial production. The economic output of agriculture for the county is valued at \$150 million. The production of vegetables and berries is not declining in acreage. Over 20 different vegetables are grown locally.

The average acreage of agricultural operations is 50 acres (medium scale agriculture); a few operations occupy areas up to 200 acres (large scale agriculture). /11/

Maintaining land designated for agricultural uses in agricultural production faces two problems:

- High land process along with past methods of appraisal and property taxes work against farmers who cannot afford to keep their land in production.

- Residential development is incompatible with agricultural land uses because the basic activities of farming, such as crop dusting, spraying, and seasonal work bring with them residential concerns about odors, noise at odd hours, and the use of pesticides and herbicides. On the other side, farmers and ranchers complain about trespassing and pets.

It is especially important to retain large parcels of agricultural land for production, so that the use of specialized machinery is economical.

## FOOTNOTES

- /1/ U.S. Geological Survey, San Francisco Bay Region, Sheet 3 of 3, 1970.
- /2/ State of California Department of Natural Resources, Geologic Map of Santa Clara County, California, Showing Mines and Mineral Deposits, 1953.
- /3/ Greenfelder, Roger W, Maximum Credible Rock Accelerations from Earthquakes in California, California Division of Mines and Geology Map Sheet 23, 1974.
- /4/ Borchardt, Roger D., James F. Gibbs, and Kenneth R. Lajoie, Prediction of Maximum Earthquake Intensity in the San Francisco Bay Region, California for Large Earthquakes on the San Andreas and Hayward Faults, Map MF-709, U.S. Geological Survey, 1975.
- /5/ CDMG, Fault Rupture Hazard Zones in California, Special Publication 42, 1985.
- /6/ CDMG, Potential Seismic Hazards in Santa Clara County, California, Special Report 107, 1974.
- /7/ Federal Insurance Administration, Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Technical Report H-75-17, November 1975.
- /8/ U.S. Soil Conservation Service, Soils of Santa Clara County, 1968.
- /9/ U.S. Soil Conservation Service, Soil Survey of Eastern Santa Clara Area, California, September 1974.
- /10/ California Division of Mines and Geology, Mineral Land Classification of Aggregate Materials in The San Francisco - Monterey Bay Area, Part II, Classification of Aggregate Resource Areas: South San Francisco Bay Production - Consumption Region, Special Report 146, 1983.
- /11/ Bibb, Roger, Agricultural Commissioner for Santa Clara County. telephone conversation. April 1, 1988.

## 12-7(6) *Climate and Air Quality*

Santa Clara County's climate is shaped by the same forces that influence and control the overall weather patterns of the San Francisco Bay Area Air Basin. During the summer, the semi-permanent high-pressure zone of the eastern Pacific Ocean normally remains near the California coast. High-pressure systems characteristically supply dry air that warms as it descends. This dry, subsiding air often acts as a cap over the cooler marine air near the surface and restricts precipitation. Subsidence inversions may be several thousand feet deep and, together with strong

sunlight, can produce worst-case conditions for the formation of photochemical smog, of which the largest single component is ozone. In addition, summer winds are generally light and provide little ventilation of pollutant emissions.

In the winter, the Pacific High high-pressure cell retreats southward, exposing the Bay area to numerous low-pressure storm systems. Between storms, however, there are periods of stagnation characterized by very light surface winds. Surface inversions, observed most often in the morning from October to February, are caused by radiation cooling of land surfaces, rather than subsiding air, but they, too, trap pollutant emissions close to the ground.

The air quality of a region is determined by the quantities and kinds of pollutants emitted, and by the concentrations of these pollutants that accumulate under the influences of local meteorology and topography. The Santa Clara Valley is bordered on the south, east, and west by mountain ranges. Under an inversion, pollutant emissions from urban areas to the north, as well as those generated in the greater San Jose area, are pushed up against the mountains, adversely affecting local air quality. On any given morning in the Santa Clara Valley, there is a 98% chance of atmospheric conditions that produce inversions below 10,000 feet. About 61% of these inversions start at the surface, due to land surface cooling. Of these morning inversions, about 20% have risen above 10,000 feet by early afternoon, allowing for greater dispersion of pollutant emissions./1/

In general, northwesterly winds generated by high-pressure cells in the Pacific are drawn through the Golden Gate and forced into a more westerly orientation. Once inside the Bay, this air mass is split and rechanneled by the East Bay hills, producing southwesterly winds at San Pablo and northwesterly winds at San Jose. Wind data taken at San Jose Airport indicate the predominance of northwesterly and west-northwesterly winds during most of the year. During winter, however, the predominant wind direction is east-southeast. The mean annual wind speed is 7.2 miles per hour./2/

## Regulations and Plans

Air quality is controlled through the attainment of **ambient standards** (maximum allowable pollutant concentrations) and enforcement of emission limits (maximum allowable rates in pounds/hour, pounds/day, tons/year, etc.) for individual sources. The federal Clean Air Act (as amended in 1977) required the U.S. Environmental Protection Agency to identify National Ambient Air Quality Standards (NAAQS), which represent minimum air quality requirements that the states were to attain by 1987. NAAQS have been established for ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (TSP), and lead (Pb). California has adopted, for the most part, more stringent ambient standards than the NAAQS for these "criteria" pollutants (i.e., those for which NAAQS have been established) and, in addition, has set ambient standards for sulfates, hydrogen sulfide, and vinyl chloride. In addition to ambient concentration standards, the BAAQMD has established regulations limiting the emissions of pollutants such as particulates and lead from specified stationary sources.

The Santa Clara County Air Basin is in the southeastern portion of the San Francisco Bay Area Air Basin. Santa Clara County has been designated an attainment area for nitrogen dioxide and sulfur dioxide by the U.S. Environmental Protection Agency, but is still a nonattainment area for ozone and carbon monoxide./4/ [An attainment area is an area where the average ambient concentrations of the pollutant being addressed have consistently been within (i.e., lower than) the standards in recent years.]

**Other air pollutants** have been found to be highly injurious, even in small quantities, but because they are relatively uncommon, most have not gone through the lengthy and costly process needed to set ambient air quality standards. Instead, these pollutants are controlled through the National Emissions Standards for Hazardous Air Pollutants (NESHAPS), emissions limits that

have been promulgated by EPA for certain industrial sources of arsenic, asbestos, benzene, beryllium, coke (oven emissions), mercury, radionuclides, and vinyl chloride. In addition to adopting NESHAPS regulations, the California Air Resources Board has established a comprehensive state program for the study, identification, and control of toxic (i.e., hazardous) air pollutants. To date, nine such pollutants have been designated toxic under this process: benzene, cadmium, ethylene dibromide, ethylene dichloride, ethylene oxide, asbestos, hexavalent chromium, chlorinated dioxins and furans, and carbon tetrachloride. Through its permitting process, the BAAQMD has also been controlling emissions of chlorides (primarily hydrochloric acid) from incinerators./3/

An **Air Quality Plan** for the basin has been adopted, as required by the federal Clean Air Act Amendments of 1977./5/ The Plan describes the air pollution control strategies necessary to attain the NAAQS by 1987. Despite considerable state, regional and local efforts to implement the strategies in the Plan, the region did not meet the 1987 attainment deadline. On November 24, 1987 (52 CFR 45044) the EPA issued a proposed policy statement to address post-1987 attainment. This policy requires areas that have not attained the ozone and/or CO NAAQS to revise their State Implementation Plans (SIPs) to demonstrate attainment and maintenance of these NAAQS. Major components of the proposed policy include a two-year time frame to develop a SIP revision; attainment within the near-term (3-5 years) or in the long-term (more than 5 years); submittal of the SIP revision to EPA in 1990; demonstration of maintenance of the NAAQS for ten years; subsequent SIP revisions every six years after 1990; and annual reports of emission reduction progress which must demonstrate an annual three percent reduction of base year emissions each year until attainment. For any area that could not demonstrate attainment in the near-term (3-5 years after EPA's approval of the SIP revision), the EPA would impose sanctions. The sanctions would prohibit construction of major air pollution sources, and the EPA could withhold federal funds for transportation projects and sewage treatment facilities./6/

The **Bay Area Air Quality Management District (BAAQMD)** is the local agency empowered to regulate air quality. The BAAQMD's Air Quality Plan identifies air pollutant control strategies, including new source emissions controls and more stringent control of currently regulated sources, to attain mandated air quality standards. New development must be consistent with the strategies of the BAAQMD for reducing levels of two non-attainment criteria pollutants: carbon monoxide (CO) and ozone (O<sub>3</sub>), and for maintaining the attainment levels of the other criteria pollutants: nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), total suspended particulates (TSP), and lead (Pb). The BAAQMD regulates air quality both through emissions standards, which limit the amount of air pollutants discharged into the atmosphere, and through ambient air quality standards, which limit the total concentration of a specific pollutant in the atmosphere.

## **Existing Air Quality**

The BAAQMD operates a regional air quality monitoring network that provides information on average concentrations of pollutants for which state or federal agencies have established ambient air quality standards. Ambient air pollutant concentrations recorded in Santa Clara County are among the highest in the Bay Area. The urban nature of the northern portion of the county, its position downwind of other Bay Area cities, and the local topography, which traps and concentrates pollutants, all contribute to the poor air quality.

The BAAQMD has five monitoring stations in the county: Alum Rock, San Jose (downtown), Moorpark, Gilroy and Los Gatos. Only the downtown San Jose station has values for all six criteria pollutants. Table 12.7.4 is a five-year summary of monitoring data for these major pollutants, collected at the downtown San Jose station on North Fourth Street. Because most of the air pollutants in San Jose are emitted by a variety of small sources spread over the urban area, rather than by a few large sources, Table 12.7.4 is likely to be representative of the northern urban area. Ozone levels are similar in the southern part of the county, but concentrations of other

pollutants are lower there. Air pollutant concentrations measured at the downtown San Jose monitoring station are compared in Table 12.7.4 with the corresponding state ambient air quality standards, which are the same as or more stringent than the corresponding federal standards.

(1) **Ozone** - The most severe air quality problem in the Bay Area is high concentrations of **ozone** ( $O_3$ ).  $O_3$  is not emitted directly into the atmosphere, but is a secondary pollutant produced through photochemical (light-induced) reactions involving hydrocarbons (HC) and nitrogen oxides ( $NO_x$ ). Significant ozone generation requires about one to three hours in a stable atmosphere with strong sunlight. For this reason, the months of April to October are the "ozone season." Ozone is a regional pollutant, because the ozone precursors (HC and  $NO_x$ ) are transported and diffused by wind concurrently with the reaction process.

The numerous small sources emitting most of the HC and  $NO_x$  are spread throughout the region. The problem is most severe in northern Santa Clara County, where  $O_3$  concentrations occasionally have approached the first stage Health Advisory Level (0.2 parts per million). Analysis of ozone concentrations trends over the past 20 years, however, indicates that even one occurrence of a Health Advisory Level of ozone is improbable in any given year./7/

(2) **Carbon Monoxide** - Carbon monoxide (CO) is an odorless, invisible gas usually formed as the result of incomplete combustion, or oxidation, of organic substances (complete combustion forms carbon dioxide,  $CO_2$ ). About 95% of the carbon monoxide emitted in the Bay area comes from automobiles./8/ Ambient CO levels normally closely follow the spatial and temporal distributions of vehicular traffic. CO levels are influenced also by wind speed and atmospheric mixing. CO standards are occasionally exceeded in the Santa Clara Valley. There were 16 excesses of the eight-hour average CO standard in 1985, most of them during mid-winter evenings. "Hotspot" monitoring by BAAQMD in San Jose has revealed that CO may become trapped under a regional inversion. Under these conditions, CO concentrations throughout the affected area may be relatively high./9/ They may also be uniform over an area out to some distance from the vehicular sources.

(3) **Total Suspended Particulate** - Suspended particulate consists of fine dust, most of it less than 30 microns (micrometers) in diameter, that stays suspended in air for long periods. Fine particles less than 10 microns in diameter (called PM-10) have been identified by the EPA as a health hazard, because they penetrate deep into the lungs during breathing and can lodge there. (Larger particles tend to be trapped in the nose, or cleared by coughing or sneezing.) The EPA established new NAAQS for PM-10 in July, 1987. These are: 150 micrograms/cubic meter for the 24-hour average and 50 micrograms/cubic meter for the annual geometric mean. [State PM-10 standards are more stringent: 50 micrograms/cubic meter for the 24-hour average and 30 micrograms/cubic meter for the annual geometric mean.] The previous particulate matter standards, for particles up to about 30 microns, were 260 micrograms/cubic meter for 24-hours and 75 micrograms/cubic meter annual geometric mean.

In the Bay Area, seven BAAQMD monitoring stations are operating prototype PM-10 samplers. The station on Fourth Street in San Jose recorded two values above the 150 micrograms/cubic meter standard during 1985, and has annual averages near 50 micrograms/cubic meter. BAAQMD analysts attribute the high readings in San Jose to the massive downtown redevelopment program, with demolition, construction, street repairs, traffic detours, etc. No other Bay Area monitoring sites show PM-10 exceeding the new national standards./6/

**TABLE 12.7.4: SAN JOSE AIR POLLUTANT SUMMARY, 1982-1986 (120 N. FOURTH ST. STATION)**

<u>POLLUTANT:</u>	<u>STANDARD</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Ozone (O<sub>3</sub>: Oxidant)</u>						
Highest 1-hr average, ppm/a/ Number of standard excesses	0.10/b/	<b>0.12</b> 4	<b>0.15</b> 22	<b>0.16</b> 24	<b>0.14</b> 12	<b>0.14</b> 1
<u>Carbon Monoxide (CO)</u>						
Highest 1-hr average, ppm Number of standard excesses	20/b,c/	16 0	17 0	18 0	<b>20</b> 1	16 0
Highest 8-hr average, ppm Number of standard excesses	9.0/b/	<b>12.3</b> 9	<b>10.6</b> 2	<b>11.4</b> 5	<b>15.6</b> 16	<b>11.0</b> 4
<u>Nitrogen Dioxide (NO<sub>2</sub>)</u>						
Highest 1-hr average, ppm Number of standard excesses	0.25/b/	0.16 0	0.18 0	0.18 0	0.19 0	0.16 0
<u>Sulfur Dioxide (SO<sub>2</sub>)</u>						
Highest 24-hr average, ppm Number of standard excesses	0.05/b,d/	0.003 0	NR NA	NR NA	0.004 0	0.007 0
<u>Total Suspended Particulate (TSP)</u>						
Highest 24-hr average, ug/m <sup>3</sup> /a/ Number of standard excesses/f/	100/b,e/	<b>189</b> 9	<b>158</b> 4	<b>155</b> 19	<b>181</b> 24	<b>122</b> 23
Annual Geometric Mean, ug/m <sup>3</sup> Violation	60/b,e/	<b>65</b> Yes	55 No	<b>79</b> Yes	<b>45</b> Yes	<b>43</b> Yes
<u>Lead</u>						
Highest 30-day average, ug/m <sup>3</sup> Number of standard excesses/f/	1.50/b/	0.95 0	0.74 0	0.75 0	0.59 0	0.27 0

/a/ ppm:parts per million;ug/m<sup>3</sup>:micrograms per cubic meter.

/b/ State standard, not to be equaled or exceeded.

/c/ The state 1-hr CO standard was revised from 35 ppm to 20 ppm in January, 1983.

/d/ Standard excess concurrent with a standard excess of state 1-hr. ozone standard or state 24-hr. TSP standard.

/e/ The California Air Resources Board (ARB) has redefined this standard to apply to "inhalable" particles only (i.e., those less than 10 microns in diameter). The new 24-hr standard is 50 ug/m<sup>3</sup> and the new annual geometric mean is 30 ug/m<sup>3</sup>. Data on the particle size distribution of the TSP sampled at the San Jose monitoring station was unavailable before 1985. According to the ARB, however, the new standards are "reasonably equivalent" to the old standards shown in the above table (see BAAQMD, Air Currents, March, 1983). Particulate data for 1985 and 1986 show measurements and excesses that correspond to the revised standard.

/f/ Measured every six days.

NOTE: Underlined values in **bold** are those which equal or exceed the standards.

NR: Not Recorded; NA: Not Available

SOURCES: California ARB, Air Quality Data Summaries, 1981-1985.

(4) **Nitrogen Dioxide**- NO<sub>2</sub> is the "whiskey brown" colored gas occasionally observed during periods of heavy air pollution. Nitrogen oxides from man-made sources are formed primarily from high-temperature combustion. The major sources of NO<sub>2</sub> are vehicular, residential, and industrial combustion. Ambient concentration standards for NO<sub>2</sub> are being met in the Bay area, and the BAAQMD does not expect these standards to be exceeded in the future.

(5) **Sulfur Dioxide** - The major source of SO<sub>2</sub> in the Air Basin is combustion of high-sulfur fuels. Ambient concentration standards for SO<sub>2</sub> are being met throughout the Bay area, and the BAAQMD does not expect these standards to be exceeded in the future.

(6) **Lead**.- Automobiles using leaded gasoline are the largest source of environmental lead in the Bay Area./10/ Federal regulations requiring the use of unleaded fuel in new automobiles, and the gradual retirement of older vehicles, have resulted in dramatic improvements in lead concentrations in the Bay Area over the last decade. Standards are being met throughout the Bay Area; concentrations should continue to improve.

### **Sensitive Receptors**

Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the young, the old, and the infirm are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Agricultural crops, especially broad-leaved produce crops and cultivated flowers, are also sensitive to air pollutants such as ozone, nitrogen oxides, and sulfur dioxide.

Residential districts are sensitive to air pollutants because people, including the young and old, are at home for extended periods so exposure periods are long. Industrial and commercial districts are less sensitive to poor air quality because exposure periods are shorter and workers in these districts are, in general, the healthiest segment of the public. Recreational land uses are moderately sensitive to air pollution because, although exposure periods are generally short, vigorous exercise associated with recreation places a high demand on the human respiratory functions, which air pollution can impair. Noticeable air pollution also detracts from the recreational experience.

For project-specific EIRs (e.g., those for TSD facilities), the BAAQMD will likely require that all sensitive receptors within two kilometers of the point of maximum concentration of any hazardous pollutant (see Impact Section) be mapped and identified./11/ In addition, the BAAQMD could require that population estimates (from census tract or other data) be provided for areas within about 10 km of the point of maximum concentration for any hazardous pollutant./11/

### **Existing Air Pollutant Emissions From Hazardous Materials Handling**

The Santa Clara County Integrated Environmental Management Project/12/ in 1985 identified 787 firms in the county that generate hazardous waste. Of these, 29 have active treatment or storage permits under the federal Resource Conservation and Recovery Act (RCRA). There are no disposal sites in the county. Small quantities of the total waste stream are recycled locally, treated on-site, or discharged to the sewers (generally after pre-treatment)./12/ Most of the waste stream, however, is shipped out of the county to certified Class I or Class II-1 disposal sites at:

- Benicia, Solano County
- Casmalia, Santa Barbara County
- Kettleman Hills, Kings County
- Martinez, Contra Costa County

About 89,000 tons per year of hazardous wastes are shipped out of the county to these facilities./12/ Criteria pollutants are emitted by the diesel trucks making these trips: NO<sub>x</sub>, CO, hydrocarbons (HC), SO<sub>x</sub> and TSP (in decreasing order by weight)./13/

Of the 29 TSD facilities with RCRA permits in the county, 18 have on-site waste treatment processes of various kinds: tanks, distillation systems and surface impoundments. The remaining 11 facilities have storage permits alone./12/ Treatment processes involve primarily neutralization of corrosives, precipitation of heavy metals, oxidation of cyanides, reduction of hexavalent chromium, or solvent distillation. These processes can result in small emissions of volatile organic compounds containing hazardous materials: chlorinated benzenes, carbon tetrachloride, chloroform, chlorophenol, ethylene dichloride, methylene chloride, perchloroethylene, trichlorethylene, vinylidene chloride, and xylene./14/./15/

## FOOTNOTES

- /1/ California Air Resources Board, 1979, Summary of California Upper Air Meteorological Data.
- /2/ California Air Resources Board, 1984, California Surface Wind Climatology.
- /3/ Jean Roggenkamp, Planner, Bay Area Quality Management District, telephone conversation, April 11, 1988.
- /4/ California Air Resources Board, "Attainment/Nonattainment Status," Memorandum, October 7, 1985.
- /5/ Association of Bay Area Governments, Bay Area Air Quality management District and Metropolitan Transportation Commission, 1982, 1982 Bay Area Air Quality Plan.
- /6/ Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District (BAAQMD), Metropolitan Transportation Commission (MTC), March 1988, Air Quality Planning in the Bay Area: 1988 Status Update.
- /7/ Bay Area Air Quality Management District, "Ozone Measurements and Trends in the San Francisco Bay Area, 1965 - 1984," Bulletin, August 8, 1985.
- /8/ Bay Area Air Quality Management District, 1982, Air Quality Handbook, 1981-1982.
- /9/ Association of Bay Area Governments, 1982, Urban Background Carbon Monoxide Levels in the Bay Area, Technical Memo #42.
- /10/ Bay Area Air Quality Management District, 1988, Air Quality Handbook, 1987-1988.
- /11/ U.S. Environmental Protection Agency, Region IX, October 1986, Air Toxics Assessment Manual for California Air Pollution Control Districts.
- /12/ U.S. Environmental Protection Agency, Region IX, October 1985, Santa Clara County Integrated Environmental Management Project, Draft Stage One Report.
- /13/ Bay Area Air Quality Management District, November 1985, Air Quality and Urban Development: Guidelines for Assessing Impacts of Projects and Plans.

- /14/ U.S. Environmental Protection Agency, Region IX, May 1987, Santa Clara County Integrated Environmental Management Project, Stage Two Air Toxics Controllability Study.
- /15/ Bay Area Air Quality Management District, June 17, 1987, Toxic Air Pollutant Emission Inventory for the San Francisco Bay Area, Progress Report.

## **12-7(7)      *Noise, Vibration, Light and Glare, and Shadowing***

Noise sources in Santa Clara County are primarily transportation systems: streets, freeways, rail lines, and airports. The Santa Clara County General Plan/1/ identifies areas with noise levels of 55 dBA/2/  $L_{dn}$ /3/ or greater as "noise impact areas". Noise impact areas exist within the 55-dBA- $L_{dn}$  contours of airports in Santa Clara County (Moffett Field Naval Air Station, San Jose Municipal Airport, Reid Hillview Airport, South County Airport); these noise contours are mapped by the Santa Clara County Airport Land Use Commission (ALUC). The 55-dBA- $L_{dn}$  contours typically extend from about one mile to about eight miles away from airport runways. The 65-dBA- $L_{dn}$  contour around the San Jose Municipal Airport extends about three miles south of the runways./1/

Freeways through Santa Clara County are also major sources of background noise greater than 55 dBA  $L_{dn}$ . Table 12.7.5, lists these, and the distance from the freeway centerlines to the 55-dBA and 65-dBA  $L_{dn}$  contours. In addition to the above noise sources, urban areas experience high background noise levels from heavy traffic volumes on local streets. These noise levels tend to be about 60 dBA to about 65 dBA  $L_{dn}$ . Rural areas away from transportation noise sources tend to have background noise levels of 40 to 55 dBA  $L_{dn}$ ./1/

The Santa Clara County General Plan identifies those parts of the County which experience noise levels of 65 dBA  $L_{dn}$  or greater as incompatible with residential use (without mitigation, such as noise insulation), and possibly detrimental to human health over the long term./1/ Areas of the County which fall into this category tend to be near major freeways (see Table 12.7.5) or within the 65-dBA- $L_{dn}$  contour of an airport. The noise compatibility criteria for land uses in Santa Clara County are shown in Table 12.7.6.

### **Sensitive Noise Receptors**

Human response to noise is subjective and varies considerably from one individual to another. The sound level of speech is typically 60 to 65 dBA. In general, noise begins to interfere with a listener's understanding of speech when it exceeds 55 to 60 dBA./4/ At levels of 40 to 50 dBA, some people have reported difficulty in falling asleep. Once asleep, most people are disturbed when noise levels exceed 70 dBA./4/

Although many studies have suggested a correlation between excessive exposure to noise and the physiological and psychological symptoms of stress, no criteria have yet been established./4/ The U.S. EPA has identified 70 dBA,  $L_{eq}$ /3/ as the maximum allowable 24-hour exposure necessary for protection from hearing loss./4/ Because of these and other effects of noise on people, some land uses are more compatible with a given noise environment than others.

**TABLE 12.7.5: SANTA CLARA COUNTY FREEWAY NOISE CONTOURS**

<u>Freeway</u>	<u>Average Daily Traffic</u>	<u>Distance (ft.) from Freeway Centerline to Noise Contours: Peak-Hour Traffic</u>	<u>Percent Trucks</u>	<u>55 dBA</u>	<u>65 dBA</u>
U.S. 101/a/:					
South County	35,000	4,500	12	1,300	300
Morgan Hill	55,000	7,200	12	1,800	400
San Jose	180,000	21,700	7	3,100	700
State Route 17 (I-880, Nimitz Freeway)	179,000	17,000	4	2,200	500
I-280	193,000	19,300	3	2,300	500
I-680	127,000	15,100	5	2,200	500
Pacheco Pass Highway/b/	-	-	-	500	-
Santa Teresa Expressway/b/	-	-	-	500	-
Hecker Pass Highway/b/	-	-	-	300	-
Congress Springs Road/b/-	-	-	-	200	-

/a/ Noise calculations were performed based on the following sources, unless otherwise noted. Vehicle volumes (average daily traffic and peak-hour traffic) are from Caltrans, 1987, 1986 Volumes on California State Highways. Truck traffic is from Caltrans, 1987, 1986 Annual Average Daily Truck Traffic on the California State Highway System. Noise contours are calculated on the basis of U.S. Department of Transportation, 1978, FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108.

/b/ Information is from the Santa Clara County General Plan. Vehicle volumes are not provided.

SOURCE: Environmental Science Associates, Inc.

**TABLE 12.7.6: NOISE COMPATIBILITY GUIDELINES, BY LAND-USE CATEGORY/a/**

Noise Compatibility Guidelines (dBA, Ldn)			
<u>Land Use Category</u>	<u>Satisfactory</u>	<u>Cautionary/b/</u>	<u>Critical/c/</u>
Residential	less than 55	55 to 65	more than 65
Commercial:			
Hotel	less than 55	55 to 70	more than 70
Other	less than 65	65 to 75	more than 75
Industrial	less than 70	70 to 75	more than 75
Public or Semi-Public:			
Churches, Hospitals and Nursing Homes	less than 60	60 to 65	more than 65
Schools and Libraries	less than 60	60 to 65	more than 65
Civic Buildings and Other	less than 60	60 to 70	more than 70
Open Space:			
Agriculture	less than 65	more than 65	/d/
Parks, Open Space, Reserves, Wildlife Refuges, etc.	less than 55	more than 55	/d/
/a/ Santa Clara County General Plan.			
/b/ New development would need an acoustical analysis to determine what attenuation measures are necessary to maintain an indoor level less than, or equal to, the maximum interior noise levels shown in Table 12.7.7.			
/c/ New development is permitted only if uses are entirely indoors and building design limits interior levels to less than or equal to the maximum interior noise levels shown in Table 12.7.7.			
/d/ No critical noise levels are listed for open space uses. Homes in agricultural areas shall be subject to the Residential standards. Public buildings in parks and open space areas shall be subject to the Public or Semi-Public standards. For open space use, the maximum level of noise which a new land use may impose on neighboring open space shall be the upper limit of the Satisfactory noise level.			

**SOURCE:** Santa Clara County General Plan.

**TABLE 12.7.7: RECOMMENDED MAXIMUM INTERIOR NOISE LEVELS FOR INTERMITTENT NOISE**

<u>Land Use</u>	<u>Noise Level (dBA)</u>
<u>Residential</u>	45
<u>Commercial</u>	
Hotel-Motel	45
Executive Offices, Conference Rooms	55
Staff Offices	60
Restaurants, Markets, Retail Stores	60
Sales, Secretarial	65
Sports Arena, Bowling Alley, etc.	75
<u>Industrial</u>	
Offices	55-60
Laboratory	60
Machine Shop, Assembly, & Others	75
Mineral Extraction	75
<u>Public or Semi-Public Facility</u>	
Concert Hall & Legitimate Theater	30
Auditorium, Movie Theater & Church	45
Hospital, Nursing Home & Firehouse (sleeping quarters)	45
School Classrooms	50
Library	50
Other Public Buildings	55

SOURCE: Santa Clara County General Plan.

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The following types of land uses are sensitive receptors in both urban and rural settings:

- Residential Uses
- Hotels, Motels
- Theaters
- Churches
- Hospitals, Nursing Homes
- Firehouses (sleeping quarters)
- Schools
- Libraries

In addition, parks and recreation areas can be sensitive receptors in suburban and rural environments.

For site-specific EIRs (such as those that would be prepared for individual TSD facilities), where noise is a potential impact, sensitive receptors should be mapped, and distances from the site to these receptors (within about a 1/2 mile) should be stated.

### **Light and Glare, and Shadowing**

During the construction and operation of a TSD facility, light and glare can be produced by vehicles, site lighting, or the ignition of gases or emissions. In urban areas, some facilities may cause shadowing of neighboring properties.

### **FOOTNOTES**

- /1/ County of Santa Clara, 1982, General Plan.
- /2/ Environmental noise is measured in units of decibels (dB), which are on a logarithmic scale. The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. The normal range of human hearing extends from about three dBA to about 140 dBA. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness; a two-decibel increase is barely noticeable to most people.
- /3/ Environmental noise fluctuates in intensity over time, and is typically described as a time-average noise level. The two descriptors used herein are  $L_{eq}$  and  $L_{dn}$ .  $L_{eq}$ , the energy equivalent noise level, is a measure of the average energy content (intensity) of noise over a given period.  $L_{dn}$ , the day-night noise level, is an index based on a 24-hour average of the energy content of the noise, with a 10-dBA "penalty" added for nighttime noise (10:00 p.m. to 7:00 a.m.) to account for the greater sensitivity of people to noise during this period. CNEL, the Community Noise Equivalent Level, is occasionally used, and is similar to the  $L_{dn}$ . It is calculated the same way as is the  $L_{dn}$ , except that an additional penalty of 5 dBA is added to noise which occurs between 7:00 p.m. and 10:00 p.m.
- /4/ U.S. Environmental Protection Agency, 1981, Noise Effects Handbook.

## **12-7(8) Visual / Aesthetics**

Land uses considered sensitive to industrial development include scenic highways, local residences, and recreational uses. Scenic highways are considered a visually sensitive land use not solely because large numbers of motorists travel these routes, but because federal, state, and local agencies have spent considerable effort in identifying and formally designating highways with exceptional scenic quality and in preserving the scenic resources that originally prompted the designation. Local residents are considered sensitive because of the duration of their exposure to any change, their familiarity with the existing landscape, and their attendant ability to detect a change. Recreational users are considered sensitive because scenic quality is generally considered an important factor in enjoying passive recreational activities such as hiking, camping, or fishing.

One method of determining visual sensitivity of a landscape from a public viewpoint is by combining user volume and user reaction. User volume is the frequency of human travel through

an area or the number of residents of an area. User reaction is the perceived concern, or potential concern, that users may have about changes in an area's scenic quality. The determination of user volumes is strictly objective, because it is based on quantitative data such as vehicle volumes on a highway. The determination of user reaction, unless based on actual surveys of users, is more subjective. Both user volume and user reaction are categorized as high or low, which also introduces some subjectivity into the methodology.

The visual effects of a site-specific project would be determined both by the degree of exposure of the site to public view and by the degree of alteration of the landscape. Projects are generally perceived as having significant adverse visual impacts when extensive alterations are made on a site frequently or broadly exposed to public view or a site which has exceptional scenic quality. Lesser impacts are attributed to extensive alteration of secluded sites, minor alteration of exposed sites, or alteration of landscapes of mediocre or common quality.

The relative visibility of a project element exposed to public view would depend upon its relationship to the existing elements of the landscape (i.e., size, shape, color, texture, orientation and movement). The project's visual impact would be determined by the degree to which it altered these visual elements and produced a contrast with existing elements of the landscape. Static objects without strong vertical or horizontal lines, which approximated the background color and texture, would be camouflaged against complex backgrounds. /1, 2/

## **Urban Areas**

The northern Santa Clara Valley is extensively urbanized, with 13 of the 15 cities in the county and the majority of the population. The northwest portion of the county, specifically the hillside communities of Los Altos Hills, Los Altos, Saratoga, Cupertino, and Los Gatos, is especially sensitive to development because of the potential for high visibility in both short- and long-range views.

Other northern county cities contain a variety of residential, commercial, office and industrial areas. General visual characteristics of San Jose are of concentrated high-density commercial/office uses and medium- to high-density residential uses. Views in Mountain View, Sunnyvale, Campbell, and Santa Clara are generally of low- and medium-rise commercial, research, and industrial facilities and low- to medium-density residential areas. Milpitas is developing rapidly; however, it still provides short-range views of open space and agricultural lands and unobstructed long-range views of the Diablo Range. Palo Alto has several distinct viewsheds, including the "urban park" views in and around Stanford University, and the suburban views of the broad, tree-lined streets of established neighborhoods.

Although there are many opportunities throughout the northern valley for unobstructed views of the Santa Cruz and Diablo mountain ranges, the overall visual impression of the county is urban. All of the cities which could accommodate the waste facilities have locations which fit the compatible industrial setting criteria. Specific visual settings of these areas are difficult to describe, as they can change on a block-by-block basis.

## **Rural Areas**

Southern Santa Clara County remains predominantly rural, except for Morgan Hill, Gilroy, and San Martin. Agricultural land on the valley bottom gives way to the foothills of the Diablo Range on the east and the Santa Cruz Mountains to the west. Because of its high visibility and wide vistas, flat agricultural land has the same development sensitivity as hillsides.

## FOOTNOTES

- /1/ Department of Agriculture, 1987, Our National Landscape.
- /2/ U.S. Department of Interior, Bureau of Land Management, Visual Resource Management System. Visual resource classes are categories assigned to public lands. Management Classification I is assigned to special areas where a decision has been made to retain a naturalistic landscape. Class II areas are additional visually sensitive areas where the objective is to retain the existing character of the landscape. Classes III and IV are allowed moderate and major modification, respectively, of the existing landscape.

## 12-7(9) *Cultural Resources*

The "Natural Environment Element" of the **Santa Clara County General Plan** identifies historic sites, and structures, and archaeologic site, as cultural heritage resources that are to be given protection and are to be a primary concern in the review of development applications. Many resources have been inventoried as part of the process.

The first recorded settlement of the Santa Clara Valley was by the Ohlone Indians about 250 A.D. The Ohlones were a non-agricultural society, dependent on the environment for food and basic necessities, until the 18th century and the arrival of the Spanish. In 1769, the Moncado Party discovered the Santa Clara Valley by accident, while searching for Monterey Bay. The initial Spanish settlements three years later were missions, presidios and pueblos, colonized "to save the souls of the Indians and to secure the territory against foreign intrusion." The mission lands were secularized in the early 1800's; large land holdings were granted to prominent Mexican families between 1810 and 1840. A few English speaking settlers came to the Valley, beginning about 1813; however, the first big wave of American pioneers (the Bidwell Party and the Stevens-Murphy-Townsend Party) did not arrive until the 1840's.

Population in the Santa Clara Valley remained steady between 1844 and 1851, when the Mexican War, ending in American statehood, and the discovery of gold in 1848, drew pioneers to other parts of the state. In the meantime, families, such as the Murphys, took advantage of statehood, which ended the restriction of land ownership to Mexican citizens only, and began purchasing the Ranchos of the Castro, Hernandez, and Peralta families. Soon, Martin Murphy, Sr. owned most of the area between present-day Sunnyvale and Gilroy.

In 1864, the Central Railroad (now Southern Pacific) completed a line between San Francisco and San Jose. Several owners of large homesteads (including Martin Murphy's heirs) began selling five-and ten-acre parcels for small ranches. Weather and soil conditions were superb for fruit and viticulture, and agricultural enterprises in Santa Clara Valley flourished well into the 20th century.

The Heritage Resource Inventory, compiled by the Santa Clara County Heritage Commission (October 1975), identifies Ohlone Indian village sites in Gilroy and Los Altos Hills, and shell mounds in Mountain View and Milpitas. Two other archaeological sites, the Coyote Creek Archaeological District and Poverty Flat Site in Henry Coe State Park, are listed on the National Register of Historic Places.

Several historic resources from the Mexican colony are listed in the Inventory including the Vacqueros Adobe Site and Hernandez Adobe in Los Gatos; Arroyo de San Jose (Juan Bautista de Anza's encampment) in Cupertino; the Juan Prado Mesa Adobe site in Los Altos Hills; Palo Alto; Jose Alviso Adobe and Jose Higuera Adobe in Milpitas; the Mission Corral Site,

Berryessa/Fernandez Adobe, Adobe Indian Dwelling, and Mission Santa Clara de Assisi in Santa Clara; and Peralta Adobe, Roberto-Sunol Adobe, the De Quevedo Adobe Site, and the first site of Pueblo de San Jose Guadalupe in San Jose.

Historic Districts listed on the National Register are the Alviso Historic district (Embarcadero de Santa Clara), and the San Jose Downtown, St. James Square, Hensley, and New Almaden districts. Also of historic note are the Galindo-Leigh House in Campbell; Woodhills (Older House) in Cupertino; Norris Cabin near Gilroy; Griffin House and Carriage House near Los Altos; Forbes Flour Mill in Los Gatos; Villa Mira Monte (Hill House) in Morgan Hill; Rengstorff House in Mountain View; Professorville in Palo Alto; St. Joseph's Church in San Jose; James Lick Mill in Santa Clara; Villa Montalvo (Phelan estate) in Saratoga; and Weller ranch in Milpitas.

## ***12-7(10) Health and Safety***

This section addresses public health and safety. It will address concerns for the safety of workers and visitors at TSD facilities as well as the individuals who live and work in close proximity to these facilities. Hazardous wastes present potentially serious health risks. There are both long-term health risks associated with repeated exposures to hazardous wastes (which can cause an excess cancer burden) and short-term health or injury risks associated with industrial accidents (such as trucking accidents or waste spills during transfers).

### **Regulatory Framework**

The U.S. Environmental Protection agency (EPA) regulates the exposure of the general public and the environment to certain chemicals. EPA-administered regulations that would apply to hazardous waste projects developed within the framework of the HWMP include the Toxic Substances Control Act (TSCA) and the Resource Conservation and Recovery Act (RCRA). EPA has the authority to inspect facilities to ensure compliance with regulations.

The California Department of Health Services (DHS) licenses and monitors all hazardous waste management facilities in California. Protection of human health is the primary goal of DHS. The basic conditions required for an operation permit are contained in the California Administrative Code, Title 22, Section 66391. /1/

DHS permits the accumulation of wastes near the point of origin if the following requirements are met:

- Full containers are transported to the permitted storage facility within 72 hours.
- Containers which are being filled do not remain at the point of accumulation for more than 90 days.
- Containers are clearly labeled per DHS requirements and the dates on which wastes were first placed in the containers are shown.
- Containers are in good condition.
- The waste is compatible with the containers.
- The containers are under close company supervision.

## Hazardous Waste

Hazardous waste is a waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may either:

- Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or,
- Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Hazardous wastes are characterized as being flammable/ignitable, corrosive, reactive or toxic. Treatment methods for these are grouped into categories in the Santa Clara HWMP which include: aqueous treatment organics, aqueous treatment metals/neutralization, incineration, solvent recovery, oil recovery, other recycling, and stabilization. The HWMP estimated 1986 capacity of each of these methods and found deficiencies for aqueous treatment, incineration, oil recovery and other recycling. Refer to Chapters 3 and 4 of the HWMP for more detailed discussion of the health and safety aspects of hazardous waste.

## FOOTNOTES

/1/ California Administrative Code, Title 22, Division 4. Environmental Health.

## 12-7(11) *Energy*

Santa Clara County consumed approximately 234 trillion At-Source British Thermal Units (Btu's) /1/ of energy in 1976. /2, 3/ About 38% of Santa Clara County's energy consumption is electricity, 31% natural gas, and 32% petroleum (primarily gasoline and diesel fuel). /3/ Santa Clara County's per-capita electricity consumption is the third highest of California's major metropolitan areas. The average commute trip length increased 28% between 1965 and 1975 to over 12 miles each way. /3/ It has likely increased since 1975.

Pacific Gas and Electric Company (PG&E) supplies electric and natural gas service to Santa Clara County. PG&E's service covers 94,000 square miles in northern and central California, includes 48 of California's 58 counties, and has a population of more than 10 million people. Electricity is provided to 3.8 million customers, and natural gas to about 3.2 million customers. /4/

## Electricity

PG&E supplied about 62 billion kilowatt-hours (kWh) of electricity in 1986. /4/ Residential and commercial customers each represented about 34% of PG&E's total electrical sales, while industrial consumption represented approximately 26%, agricultural consumption four percent, sales to other electrical utilities one percent, and public street and highway lighting one percent. This power was produced by a diverse generating system which includes hydroelectric, nuclear, fossil fuel, geothermal, cogeneration, wind biomass, and solar facilities.

The peak 1986 electrical demand for the PG&E service area occurred on August 4 and was 15,439,000 kilowatts (kW). PG&E was able to meet this peak demand with a 17.4% reserve margin (the amount of available capacity over peak demand). /4/ PG&E produces most of its power through the burning of fossil fuels (about 20%) and hydroelectric facilities (also about 20%). Nuclear power plants provide about 16% of PG&E's electricity; geothermal provides about

12%. About 10% is provided by other sources (solar, wind energy, biomass conversion) and about 2% is purchased out-of-state. /4/

PG&E is required by federal law to sign contracts and purchase all power produced by small generators in its service area. The California Public Utilities Commission (PUC) determines which of these generators are "Qualifying Facilities," and set the price PG&E must pay for the power generated. /4/

PG&E does not expect to require any additional large central station electric power plants in the near term, in light of the capacity provided by the recent addition of the Helms Pumped Storage Project and the Diablo Canyon Nuclear Power Plant, and small "alternative" energy projects built by independent producers. /3/ PG&E projects that about 8.0 million kW of new capacity will be provided by a variety of cogeneration, geothermal, small hydroelectric, and wind energy projects, much of this developed by independent producers. PG&E-constructed projects expected to come on line by 1995 include about 335,000 kW of power from three new geothermal units at The Geysers, 166,000 kW of additional hydroelectric power, and a possible 326,000 kW of purchased power from PG&E's participation in the building of a 1.6-million kW transmission line from the Pacific Northwest to California. PG&E forecasts a need for added capacity in the late 1990's, for which no specific projects are yet planned. /4/

PG&E owns and maintains transmission and distribution lines throughout Santa Clara County. A primary 500 kV transmission line traverses Santa Clara County from northeast to southwest. Electrical power is distributed throughout the county from this transmission line via a substation near U.S. 101 in Coyote. Transmission lines of 230 kV, 115 kV and 60 kV carry power to distribution substations or large individual customers. Smaller lines (under 50 kV) emanate from the distribution substations to serve residential and commercial customers. /4/

## **Natural Gas**

PG&E supplied approximately 406 billion cubic feet of natural gas to its customers in 1986. /4/ Approximately 47% of this was consumed by residential customers, 19% by commercial customers, 32% by industrial customers, and about two percent was sold to other utilities. PG&E's peak-day for natural gas in 1986 was 3,107 million cubic feet. /4/ Canadian sources provided approximately 42% of PG&E's 1986 gas requirements, while southwestern U.S. sources supplied 34%, and California sources supplied 24%. /4/

Natural gas service to the county is provided via three transmission mains near the alignment of Interstate 880 (the Nimitz Freeway) in Milpitas. Gas from these transmission mains is distributed throughout the county from a gas regulating station near Calaveras Road and the Nimitz Freeway in Milpitas. /5/

## **Santa Clara County General Plan**

The Santa Clara County General Plan has the following energy control policies which would related to the design and placement of TSD facilities for hazardous waste:

- Consumption of electricity and natural gas in existing buildings should be reduced.
- Use of solar energy and other renewable energy in existing buildings should be encouraged.
- New buildings should be designed to maximize energy efficiency and the use of renewable energy.

- Energy conservation should be a primary consideration in developing local land use plans and in reviewing development proposals.
- Land use decisions should be based on the need to reduce home-to-work travel distance, minimize travel distance to obtain goods, services, and recreation; and increase access to public transit.
- Environmentally safe alternate fuels should be substituted for petroleum whenever possible.
- Energy efficient forms of transportation and the use of renewable fuels shall be encouraged to the maximum extent possible.

## FOOTNOTES

- /1/ One British Thermal Unit (Btu) represents the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit. At-source energy content includes the energy content of the fuel itself, and energy consumed in extraction, processing and transportation of the fuel.
- /2/ Santa Clara County General Plan, 1982, Energy Element.
- /3/ Pacific Gas and Electric Company, 1986, Annual Report.
- /4/ County of Santa Clara Planning Department, 1968, Gas and Electric Utilities Plan, Public Services and Facilities Element of the General Plan of Santa Clara County.
- /5/ Hannon, B., et al., 1978, "Energy and Labor in the Construction Sector," Science 202:837-847.

## 12-7(12) *Public Services and Utilities*

### Emergency Response Services

Specific areas of concern for Santa Clara County's Emergency Response Plans include unincorporated areas and cities which are under contract to the county Health Department. The Hazardous Materials Area Plan (HMAP) contains threat summaries for cities under contract to the county and for the other cities in the county as well. Threat summaries include maps of critical risk, limited risk, and other areas designated as containing significant amounts of hazardous materials in each of the cities. /1/

Few industries involved with significant amounts of hazardous materials are located in the unincorporated areas of the county. It is by design that most industrial and other forms of large or complex development are placed in municipalities where urban services are available. Industrial facilities in isolated areas, such as United Technology Corporation (UTC), usually have the means to take care of any potential problems on their site.

Responsibilities in emergency situations are organized similarly at both city and county levels. In emergency situations, the Director of Emergency Services directs the operating departments of city or county governments, collects and disburses resources, and coordinates communications and decision making.

Police

The urban areas of Santa Clara County receive police services from eleven municipal police departments and the county Sheriff's Department. Many police departments in Santa Clara county are finding it difficult to maintain their service standards in the face of increasing demand. The Sheriff's Department also services the unincorporated areas of the county, and offers contractual police service to the communities of Los Altos Hills, Cupertino, Saratoga and Monte Sereno.

Table 12.7.8 lists the Police and Sheriff's departments in Santa Clara County.

Table 12.7.8: Police and Sheriff's Departments, Santa Clara County

Campbell	Police	Mountain View	Police
Gilroy	Police	Palo Alto	Police
Los Altos	Police	San Jose	Police
Los Gatos	Police	Santa Clara	Police
Milpitas	Police	Santa Clara Co.	Sheriff
Morgan Hill	Police	Sunnyvale	Police

SOURCE: Captain Don Tamm, Acting Assistant Sheriff in Charge of all Field Operations, Telephone Conversation, April 14, 1988.

It is expected that police services will grow according to the growth of the Santa Clara County, and in response to the demand for such services. The demand is a reflection of the number of areas to patrol, the density of the areas, the crime rate, and the availability of other services to cope with some of the duties the police force currently undertakes.

The crime rate is expected to increase as the population grows, particularly if there are difficult economic times. By the year 2000, there will be an increased demand for police services, which will be met by increasing staff to stabilize the ratio of policemen to population and by increasing efficiency in the police departments.

Fire

Rural, unincorporated areas of Santa Clara County have a combination of weather, vegetation and topography which creates extremely dangerous fire hazard situations at certain times of the year, especially during drought.

With the exception of grasslands, all of the mountainous land in the county is rated Extreme or High in fire hazard rating from the California Division of Forestry (General Plan). The fire hazard is lowest on the flat valley floor, which tends to have cultivated crops. Nearly all of the eastern Diablo Mountain Range is rated Extreme, as are the northern Santa Cruz Mountain Range between State Route 17 and Congress Springs Road, and the southern Santa Cruz Mountains below Chesbro Reservoir. No rural areas in the county have low fire hazard.

Fire protection services in Santa Clara County are currently provided by 10 municipal fire departments, six county fire districts, two local fire districts, and the California Division of Forestry. The cities of Cupertino, Los Altos Hills, Los Gatos, Monte Sereno and Saratoga receive fire protection services from one or more fire protection districts. The Fremont (Alameda County), Los Altos and Milpitas Fire Protection Districts contract with neighboring cities to provide fire services to city residents living within the respective districts.

Fire protection capabilities vary over the rural areas in Santa Clara County. Most of the two mountain ranges are not within a fire district; they fall under the jurisdiction of the Division of Forestry, which provides fire protection during the fire season, but limits its operations substantially in the winter season. The Division of Forestry has aircraft capable of reaching the scene of a fire in any area of the county within 5 to 15 minutes. However, remote areas of the county cannot count on fire protection.

By the year 2000, with the increased population of Santa Clara, the demand for fire protection services will also increase. According to fire officials, residential land uses present the greatest demand for fire services. Therefore, future residential growth will result in increased demand for fire protection services. The configurations of future residential growth (the locations and types of residential dwelling units) will also influence demand.

Commercial and industrial land uses, while demanding less frequent fire protection service, produce fires which are more difficult to fight. Industrial fires are more likely to involve releases or potential releases of hazardous materials as well. Therefore, commercial and industrial growth will not only increase the demand for fire services, but also for fire department capabilities to deal effectively with hazardous materials emergencies as well.

## **Environmental Health**

Cities under contract to the county Health Department are Los Altos, Los Altos Hills, Monte Sereno and Saratoga. Other Santa Clara County cities provide their own environmental health services.

In case of an incident involving hazardous materials, the county Health Agency is responsible for assessing public health risks and advising the Director of Emergency Services whether declaration of an emergency and/or other actions are required to protect public health./1/

Under a Memorandum of Understanding (MOU) with the California Department of Health Services, the Hazardous Materials section of the Santa Clara County Health Department has established a program to ensure the completion of on-site compliance inspections of facilities subject to the Emergency Response Plans and Inventories legislation (AB 2185 and 2187, and Chapter 6.95, Health and Safety Code).

## **Toxic Spills Response Capability**

There are five hazardous materials (hazard-mat) vehicles (HMTVs) in Santa Clara County. Under the Mutual Aid Plan, an agreement among public and private agencies, these vehicles can be made available to respond to hazardous materials emergencies.

San Jose and Sunnyvale have vehicles which are available 24 hours a day. Sunnyvale's Haz-mat vehicle is also equipped as a light plant and carries heavy rescue equipment.

Chemists are assigned to the City of Santa Clara's vehicle. Their primary role is to perform analyses and support evacuation activities. The fourth vehicle belongs to the Central Fire District. This vehicle does not have permanent staff, but is available as needed throughout the county.

The fifth vehicle available for hazardous materials emergencies is Haz-Mat I, provided by the State of California. Haz-Mat I is assigned to the Central Fire District, which is responsible for providing housing, maintenance and trained staffing for the vehicle, and for responding to and assisting with hazardous materials incidents in the county. The hazardous materials response unit is staffed by three fully trained hazardous materials response team members. Any Santa Clara County government agency can request the vehicle through the fire agency that has jurisdiction at the scene of an incident. /1/

The likelihood of toxic spills will grow by the Year 2000, as will the county's capability to deal with them. Growth in hazardous materials emergency response capabilities will stem from an increased awareness of the hazards of these materials; technological improvements in monitoring, clean-up, and communications systems and equipment; and the increase in monitoring and inspection of sites with hazardous materials and waste.

### **Medical, Paramedical and Hospital Services**

Emergency medical services are coordinated by the Santa Clara County Health Agency. At the scene of an emergency, the Incident Commander assigns the responsibility for coordinating administration of medical services during the incident. This includes transportation and medical care for the injured, exposed or contaminated victims. The Fire Service is expected to provide the initial on-scene medical evaluation and care./1/

Initial contact with a hazardous materials emergency will be the responsibility of local fire departments. The on-scene fire department's hazardous materials (haz-mat) team decontaminates all victims of a hazardous materials emergency, then transfers responsibility to one of Santa Clara County's 18 paramedical services for transportation to a hospital. Paramedical services are required to protect their vehicles from contamination and transport decontaminated victims to the hospital. Santa Clara County has 12 hospitals which are required to have hazardous materials emergency medical capabilities./2/

### **Water Supply**

A variety of water sources has been developed in Santa Clara County to meet the increasing water demand. Existing water sources include imported surface water, local surface water, and groundwater. Over one-third of the water used in Santa Clara County is imported from other areas in California.

Imported water is currently available from Hetch Hetchy and the South Bay Aqueduct. Water deliveries to the Santa Clara Valley from the Hetch Hetchy system have increased substantially since the first water contracts. Deliveries reached 66,980 acre-feet in 1985 (an acre-foot is equal to 325,828 gallons of water. /3/ Also, in 1985, The South Bay Aqueduct delivered nearly 102,000 acre-feet to the county.

Local surface water comes from storage reservoirs constructed on nine of the streams draining into the valley. The Santa Clara Valley Water District owns and operates eight major reservoirs in the county with a total capacity of about 155,000 acre-feet.

Groundwater comes from 3 major subbasins, Santa Clara, Coyote and Llagas, which provide water to Santa Clara County. Groundwater in Santa Clara County is tapped through wells owned and operated by water retailers or private parties. A total of 107,000 acre-feet per year is delivered from all wells in the subbasin. /3/

The amount of water demand is correlated directly with the amount of growth. Therefore, the anticipated growth of Santa Clara County will increase the demand for potable water. Since the county has already exceeded its own water supply, and must import water into the county, this trend toward increased water import will continue as the demand increases. The lack of substitutes for water puts a high value on this resource, especially in the dry summer months.

## **Sewage Collection and Treatment**

Santa Clara County is serviced by eight municipal and eight special sanitary district sewage collection systems. There are regions of the county, including portions of some unincorporated areas, that are not served by sanitary sewers. Wastewater in those areas is disposed of through septic tanks. The majority of the unsewered territories in Santa Clara County are low-density areas.

Sewage from county collection systems is treated at plants in both the northern and southern areas of the county. Sewage collected in the northern part of the county is treated at the Palo Alto, Sunnyvale, San Jose - Santa Clara and Alviso plants. Those plants discharge their effluent directly or indirectly into San Francisco Bay.

The sewage treatment plants in northern Santa Clara County treat industrial wastewater in conjunction with residential and commercial flows. Wastewater from canneries accounts for a large percentage of the industrial flows to the Sunnyvale and San Jose - Santa Clara plants, especially during the peak summer canning months.

According to The Santa Clara County General Plan, the major sewage treatment plants in the county are approaching capacity. Future growth in Santa Clara County will place increased demands upon sewage collection and treatment facilities. Residential and industrial growth will result in increased water usage, which in turn will increase the amount of wastewater generated.

Residential growth will directly influence the demand on sewer facilities, as residential wastewaters will likely increase in proportion to residential growth. The relationship of growth to wastewater demand is less direct for industrial land uses.

Industrial wastewater demand in the year 2000 will be determined in part by the types of industry locating in the county, their individual wastewater requirements, the economic and technological viability of "in-house" wastewater recycling, and the future regulations affecting the quality of industrial wastewater and level of user service charges.

## **FOOTNOTES**

- /1/ Santa Clara County Office of Emergency Services, 1987, Hazardous Materials Area Plan.
- /2/ Milt Silberberg, Director of Emergency Medical Services, Santa Clara County, telephone conversation, April 15, 1988.
- /3/ Santa Clara Valley Water District, 1987, Groundwater Management in Santa Clara Valley.

## **12-8 Environmental Impacts and Mitigations**

The Hazardous Waste Management Plan was evaluated for its potential impact on the environment. The analysis determined that certain goals and policies related to two aspects of the plan had potentially significant adverse impacts on the environment. These were [1] Siting of Hazardous Waste Management Facilities, and [2] Transportation. These aspects of the plan are discussed in Chapters 8 and 9 of the HWMP, respectively.

With implementation of the recommended mitigation measures, the County as a whole will experience no significant adverse impact from implementation of the HWMP. With (1) implementation of the policies and siting criteria described in this HWMP, (2) Federal, State, and regional regulations regarding hazardous waste and (3) the local land use policies and regulations regarding hazardous waste and emergency response, any potentially significant impacts should be reduced to a less than significant level.

This chapter describes the impacts and potential mitigations associated with each of these two HWMP aspects in the two subsections which follow. The particular goals and policies which were believed to have potentially significant impacts are listed at the beginning of each subsection.

The other goals and policies of the HWMP were found to have either no significant impacts or beneficial impacts on the environment. All of the policies incorporated in the HWMP, whether found to have potentially significant adverse impact or not, are found in Chapter 2.

### **12-8(1) Siting of Hazardous Waste Management Facilities**

**Goal 2:** To maintain the economic competitiveness of Santa Clara County and the State by siting only those facilities which are necessary, and which safely, economically and responsibly, manage the hazardous waste needs of the County.

**Policy 8-2:** Areas designated for industrial uses by the applicable General Plan may be appropriate for hazardous waste transfer/processing stations if, during the development review process, it is determined that such a use would be compatible with the existing and planned land uses in the vicinity of the site. Urbanized areas designated for industrial uses are not appropriate for siting residuals repositories.

**Policy 9-2:** Hazardous waste management facilities should be located at sites which minimize the risks associated with the transportation of hazardous waste. Residuals repositories may be located more distant from waste generation sources than other types of facilities given their need for larger land areas.

**Note:** The Siting of Hazardous Waste Management Facilities aspect of the Plan is described in Chapter 8 of the HWMP. All mitigations that follow have in parenthesis the impact(s) they tend to reduce or moderate.

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**Note:** The Siting of Hazardous Waste Management Facilities aspect of the Plan is described in Chapter 8 of the HWMP. All mitigations that follow have in parenthesis the impact(s) they tend to reduce or moderate.

**Impacts:**

1. Hazardous waste facilities, excluding residuals repositories, would be sited in **industrially zoned areas** within incorporated urban areas. The land area required to site these facilities would range between one and ten acres. Facilities of this size, sited in industrially zoned areas, would likely not be in conflict with the appropriate General Plan.

These facilities, like other industrial properties, might compete with other industrial installations or other uses, such as residential and commercial, for a shrinking land base. The siting of a facility, moreover, would have the effect of "dedicating" both the site and its surrounding buffer zone to industrial use. (Siting criteria, Chapter 8, HWMP, provide reasonable standards for buffer zones and hazard potentials.) This could increase pressure to annex new land to the urban service area.

Besides zoning, surrounding land uses and land use compatibility must be considered. Some siting areas may be too small and/or located near incompatible land uses, such as residences, schools, and commercial uses, to provide appropriate sites for some kinds or sizes of facilities. The activities of a particular type of hazardous waste facility might be incompatible with certain kinds of industrial activities, such as food products production.

2. Facility location **adjacent to residential development** could affect property value negatively, depending on public perceptions of the facility.
3. **Grouping facilities** into a large complex could reduce the cost of transporting hazardous wastes and likely would reduce the chance of accidents and their impacts. The impacts resulting from locating facilities near incompatible land uses might be greater, however. Careful choice of a site and employment of mitigation measures would be required to ensure that neighboring land uses and populations are adequately protected.

**Mitigations:**

- a. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety). (all)
- b. A sufficient number of potential siting areas of sufficient size must be made available to meet the facility needs of Santa Clara County. The county's HWMP has identified a large number of potential siting areas for hazardous waste facilities (except residuals repositories) within industrial zones in eleven Santa Clara County cities. (all)
- c. Facility siting must take into account both actual and potential industrial and non-industrial land uses surrounding the site. Buffer zones, as described in Santa Clara County's HWMP and DHS' Siting Criteria, /1/ can provide protection for residential and other non-industrial land uses. As noted in the HWMP, additional engineering or natural separation may be required as part of the land use permit. (all)
- d. If a proposed facility's possible negative effect on property values becomes an issue, the county or the Local Assessment Committee (LAC) could require a proponent to fund an independent study of the project's impact on housing values. If negative effects are identified, the county could require, or the LAC could negotiate, compensation for affected home owners. (2)

[The Local Assessment Committee is a seven-member body appointed by the local legislative authority responsible for deciding on permits for the proposed TSD facility. The LAC's membership and duties are described in the Tanner Bill (Health & Safety Code, 25199.7(d) et seq.). The basic role of the committee is to represent the interests of the residents of the city or county in which the facility is proposed.]

- e. Incorporation of new hazardous waste reduction equipment into existing installations and its operation must comply with the Uniform Building and Fire Codes and the local hazardous waste ordinance. (1,2)

## **12-8(1.2)     *Flora and Fauna***

### **Impacts:**

- 1. **Biological contaminants**, such as viruses, as well as toxic chemical contaminants could be released into the air or water during an accident or deliberate release and spread to neighboring areas. Contaminants could spread to the surrounding hills, San Francisco Bay and its wetlands, important natural areas, and areas supporting rare, threatened and endangered species.
- 2. **Fires** associated with seismic activity or accidental releases could affect surrounding communities, including the Santa Cruz Mountains and Diablo Range, important natural areas and areas supporting rare, threatened and endangered species.
- 3. If an **accidental or deliberate discharge** into a wetland or waterway were to occur, this would contribute to the cumulative degradation of wetlands surface waters, and/or groundwater in Santa Clara County.
- 4. **Site landscaping** may affect surrounding natural communities. The introduction of non-native species could affect surrounding vegetative communities, if non-native species were to invade and take over surrounding areas. Pesticides and herbicides used for landscaping could be washed by rain or blown by wind into adjacent areas, affecting the vegetation, wildlife and water quality.
- 5. **Siting** of hazardous waste facilities in certain areas could conceivably impact the habitat of rare or endangered plant or animal species.

### **Mitigations:**

- a. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety). (all)
- b. The exclusionary criteria discussed in Chapter 8 should protect critical habitat and wetlands. (4,5)
- c. Enforce existing laws regarding handling of hazardous waste, including the prosecution of illegal waste disposal. (1,3)
- d. Implement the County's emergency response plan in the case of illegal or accidental emissions or spills. (all)

- e. Proponent shall design and implement an emissions monitoring program as required by State law to detect air and water contaminants. (1, 3)
- f. Design facilities in compliance with State law and local general plans so that:
  - accidental spills or emissions would be contained on the project site. (1, 3) and;
  - fires will not spread beyond the facility perimeter. (2)

Additional measures are discussed under "Health and Safety", Section 12-8(1.10).

### **12-8(1.3)      *Hydrology and Water Quality***

#### **Impacts:**

1. **Release of hazardous waste** could result in degradation of surface water quality and (through soil percolation) contamination of groundwater.
2. Project facilities could potentially suffer damage if subject to **flood hazards** resulting from levee failure, stream flooding, or dam failure. Levee failure would be a hazard at the northern portion of the county adjacent to San Francisco Bay. Stream flooding could occur in many portions of the county. Possible effects include property damage, human injury and mixing of wastes with flood waters.

Dam failure inundation would have the same possible effects as stream flooding. However, the warning time in the case of dam failure would probably be very short, reducing the lead time to implement emergency response measures and thereby increasing the risk of human injury and property damage.

3. **Groundwater contamination** - The groundwater management report prepared by the Santa Clara Valley Water District (SCVWD) identifies areas for high priority protection, moderate priority protection and groundwater management zones. High priority areas for protection are those where recharge occurs, development consists of residential uses or open space, and groundwater contamination is not present. These areas are generally on the western and eastern portions of the valley. Moderate priority areas for protection have residential and open space lands and are free from groundwater contamination. These areas are less intensively developed with groundwater wells and represent areas of possible future expanded groundwater use. Taken together, the moderate and high priority areas cover the fringe of the Santa Clara subbasin where recharge occurs, a portion of the center of the subbasin where a confined deep aquifer occurs, and most of the Coyote subbasin. /2/

Groundwater management zones are areas where contamination exists and the spread of contaminated plumes could be affected by groundwater pumping. Also included are areas of industrial or miscellaneous land uses where groundwater use now occurs. The major areas of groundwater management zones include the northern two-thirds of the Santa Clara subbasin and the area directly north of Coyote Narrows.

Transfer and storage, aqueous treatment, recycling, solidification facilities and incinerators store and handle liquid hazardous waste. Release of liquid wastes to the environment could result in infiltration into the soil and contamination of groundwater. Because of the extensive use of groundwater in the Santa Clara Valley, contamination could cause eventual human contact and health effects. Even if contamination should be discovered prior to human use, the loss of use of groundwater could be a significant hardship to valley residents and industry. Solid wastes also could come into contact with surface runoff or, if buried, groundwater, contaminating that water. Migration of the contaminated water through the ground could cause

degradation of aquifer water quality. Because streambeds are commonly areas of aquifer recharge, contamination of storm runoff could cause groundwater degradation in many cases.

Unconfined aquifers are not isolated by impermeable geologic materials from the ground surface. Those aquifers could be contaminated by direct infiltration into the soil above them. Confined aquifers are isolated (by impermeable layers) from the ground surface and could not be contaminated from infiltration into the soil above the aquifer. The recharge areas for confined aquifers are often at a distance from the aquifer location. Thus infiltration of contaminants would occur only at the recharge area, after which contaminant migration could degrade the aquifer.

### Mitigations:

- a. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety). (all)
- b. Prepare site-specific EIR where impacts may be significant. (all)
- c. In accord with State law, install impervious surfaces and berms where hazardous wastes are handled and stored to isolate them from surface/groundwater. Direct all storm runoff from contained areas to impervious storage area with 100 year storm capacity. Test and treat stored runoff if necessary to protect water quality. (all)
- d. Implementation of the HWMP would result in the long term improvement of county surface/groundwater quality through reduction of improper hazardous waste disposal. (1,3)
- f. To provide adequate drainage, portions of a facility not used for handling or storage of hazardous waste should be connected to municipal storm drains in conformance with applicable local or county development standards. (2)
- g. To minimize the potential for flooding hazards:
  - the 100-year high tide level along San Francisco Bay should be determined in consultation with the National Oceanic and Atmospheric Administration (NOAA).
  - an investigation to determine the 100-year flood level and the depth of that flood should be conducted if a hazardous waste facility is proposed in such an area.
  - areas possibly subject to inundation in the case of dam failure should be determined from studies of inundation areas required by state law. (See Figure 8-5 in the HWMP.)

Facilities should be sited in accordance with the HWMP siting criteria and local general plan policies regarding these flood dangers. (2)

- h. To reduce the potential for contamination of wetlands, U.S. Army COE criteria should be applied to determine the extent of wetlands near proposed sites for facilities. In accord with BCDC regulations, facilities should be located outside wetlands with a buffer zone width to be determined on a case-by-case basis. The buffer zone should be sufficiently wide to prevent hydrologic continuity between the facility and wetland. (1)
- i. In accord with local general plans and the SCVWD regulations, to prevent contamination of aquifers, hazardous waste facilities should be located outside high-priority groundwater protection zones as mapped in the SCVWD's Groundwater Management in the Santa Clara Valley. (3)

## **12-8(1.4) Transportation**

### **Impacts:**

1. Although adverse **transportation** impacts should be lessened under the plan, impacts on specific local areas, such as those in the vicinity of off-site commercial facilities, might increase. The siting of new, commercial TSD facilities, regional facilities, or large multi-use facilities could also have negative effects on specific segments of major transportation corridors. Facility construction could have adverse effects on local traffic, transportation and parking, as could employee commuter traffic, once the facility is operating.

### **Mitigations:**

- a. Implementation of Santa Clara County's HWMP should have generally **beneficial effect** from a transportation perspective. The successful implementation of source reduction programs should reduce the number of transport trips involving hazardous waste and increase the likelihood that the hazardous wastes being transported are, on the whole, less toxic than without the Plan, since transportation of untreated wastes would decrease.(1)
- b. In accord with local general plan policy and CEQA, facility construction **planning** should include measures to mitigate impacts to local traffic and transportation around the construction site. (1)
- c. Prepare site-specific EIR where impacts may be significant. (1)
- d. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety). (1)

## **12-8(1.5) Geology and Soils**

### **Impacts:**

1. **Grading** - The Santa Clara Valley floor is essentially flat and only minor earthwork should be required to level a site for construction of hazardous waste facilities. More substantial earth movement would be required to construct containment dikes and berms, foundations, and storage ponds for the various types of facilities. Substantial grading could also be required for site preparation in areas of poor or unsuitable soil conditions. Grading for foundations for buildings and associated structures would occur but would be minor, except possible in areas of compressible, expansive or liquefiable soils. In areas with those types of soil, cutting to remove the unsuitable soil might be required. However, construction of those types of facilities would not result in the need for unusual amounts of earth movement or significant topographic alteration.
2. Primary seismic hazards consist of ground surface rupture along fault lines, and groundshaking in soil areas subject to liquefaction.

Strong groundshaking would affect the proposed facilities in the event of a major earthquake on a regional fault. Groundshaking could cause structural damage to buildings, cracking of utility and pipe lines, damage to concrete and asphalt pavement, overturning of stored drums, and failure of containment berms. Typical industrial buildings, which would be built at all the types of proposed facilities, would be prone to severe structural damage if not specially designed to withstand seismic events. Secondary seismic hazards could cause ground failure

and structural damage to buildings. Additionally, pavement and utilities lines could be cracked and containment berms and sump liners could be damaged, negating their capability to prevent release of hazardous liquids.

## **Mitigations:**

- a. In accord with local general plan policies and State law regarding geologic hazards the following steps shall be taken prior to facility design:
  - a soils report be prepared by a California-licensed civil engineer. That report should recommend slope gradients and compaction standards for containment berms, and inclinations for cell walls which would be stable under static and dynamic (seismic) conditions. The geotechnical investigation for each specific facility should analyze the stability of hillside areas, if necessary, at that proposed site. To minimize soil erosion during construction, an erosion control plan should be prepared by a registered civil engineer for all proposed facility construction.(1)
  - a geotechnical investigation be undertaken by a California-registered geologist or engineering geologist to reduce geologic hazards in areas of potential impact to proposed facilities. That study should determine the location of active and potentially active faults in the site vicinity and delineate the required 200-foot setback zone from fault traces required by State law. The geotechnical investigation should also examine the potential for liquefaction, settlement, lateral spreading, ground lurching, slope failure, and landslides at the proposed facility site.(2)
- b. In accord with the current Uniform Building Code to minimize the potential for these seismic effects, hazardous waste facilities could be designed and constructed to withstand earthquake damage. This would require extraordinary structural design and high-quality construction techniques.(2)
- c. Comply with the County Hazardous Materials Storage Ordinance requirements regarding containment that would minimize spills due to seismic activity. (2)
- d. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety). (all)

## **12-8(1.6) Climate and Air Quality**

### **Impacts:**

1. Emissions of air pollutants during **construction** of TSD facilities would result primarily from dust generated from earth moving, excavation, and other construction activities; emissions from fuel combustion in off-road vehicles used for construction, and motor vehicle emissions associated with commuting by construction personnel.

Fugitive dust emissions would have the greatest potential to exceed ambient standards, but would vary according to the level and type of activity, silt content of the soil, number of temporary (i.e., unpaved) construction roads at the site, and prevailing weather. Large-sized particulates, greater than 30 microns in diameter, are characteristic of construction particulates and settle out of the atmosphere rapidly with increased distance from the site. As a result, much of the dustfall can be expected to occur within 800 feet of specific construction sites. Particulates less than 30 microns in diameter, however, would remain suspended for a longer period and could annoy persons with an existing respiratory problem. The state 24-hour PM-10 particulate standard of 50 micrograms per cubic meter (particulate diameter ten microns or

less) would probably be violated occasionally on and near construction sites. Without mitigation, grading and construction in hot, dry summer weather, combined with predominant northwesterly winds, could adversely affect sensitive receptors southeast of construction sites.

2. **Operation** - Estimating the emissions that could occur from stationary and mobile sources as a result of this Plan's implementation is speculative, since the final mix of waste reduction measures cannot be predicted with any accuracy. Operating TSD facilities would generate emissions of criteria pollutants indirectly through transportation sources (automobiles, hazardous-waste transport trucks), and directly from operations.

Nevertheless, certain general conclusions can be drawn:

- Transfer stations, treatment facilities, recycling facilities and stabilization/solidification facilities could emit significant amounts of volatile organic hydrocarbons.
- Treatment facilities and recycling facilities could emit significant amounts of nitrogen oxides.
- Residuals repositories could emit very large quantities of particulate matter, unless appropriate mitigation measures were undertaken.

TSD facilities would likely release two kinds of hazardous contaminants into the air:

- particulate matter containing heavy metals or adsorbed organic or inorganic pollutants, which are generally released as products of combustion.
- volatile organic compounds, which can be released as fugitive emissions during handling, or which can be products of incomplete combustion;

All hazardous waste facilities under consideration could be sources of toxic and/or carcinogenic volatile organic compounds. The incinerator and the residuals repository could be sources of particulate matter containing heavy metals.

### **Mitigations:**

- a. Prepare site-specific EIR where impacts may be significant.(all)
- b. This siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety). (all)
- c. The BAAQMD would determine, on a case-by-case basis, the need for modeling of emission concentrations of criteria/non-criteria pollutants, and risk assessment. Direct emissions, indirect emissions, and proximity to sensitive receptors would be considered.(all)
- d. As required in the HWMP, develop a waste reduction plan consistent with the priorities expressed by the Hazardous Waste Management Hierarchy. (all)
- e. Developers shall provide BACT and TBACT for criteria and toxic pollutants. Specific technologies required will depend on the proposed facility's type, size and location, and requirements of the BAAQMD. Facility construction and operation would be closely regulated. Specific types of air pollution controls would be required by the BAAQMD.(all)
- f. Emission offsets may be required by the BAAQMD. Specific offset actions may be determined on a case-by-case basis. (2)

## **12-8(1.7) Noise, Vibrations, Light, Glare, and Shadowing**

### **Impacts:**

1. **Construction** noise would be annoying anywhere where it dominates background noise levels, and is greater than 60 dBA in the daytime, or greater than 50 dBA at night. It would interfere with speech and concentration. This generally would occur within about 200 feet of construction sites. Because construction noise is temporary, however, it is not generally considered to cause "significant" adverse effects.
2. **Operation** - On-site equipment could cause noise and vibration problems, but these would have to be identified on a site-specific basis. Outdoor noise levels would likely be audible at the property line. Indoor noise levels would be audible at the property line only at night, if at all. Truck and equipment movement could cause vibration in nearby buildings.
3. **Residents near hazardous waste facilities** could be disturbed by the following light-and-glare impacts:
  - Reflective materials creating glare;
  - Shadowing effects from storage towers;
  - Brightness in the evening due to nightlighting;
  - Vehicle lights during construction and facility operation.

Facilities with stacks or silos could cause shadow effects on neighboring properties, affecting the use of open areas or daytime lighting in buildings.

### **Mitigations:**

- a. Prepare site-specific EIR where impacts may be significant.(all)
- b. Require design, construction and operation of hazardous waste facilities to achieve compliance with the noise policies of the local jurisdiction's general plan. (1,2)
- c. Operate the facility in compliance with the local jurisdiction's noise ordinance. (2)
- d. Design the facility in compliance with local design guidelines regarding light and glare. (3)

## **12-8(1.8) Visual/Aesthetic**

### **Impacts:**

1. Facility **construction, operation and processes** (including modifications) may have adverse visual effects.

### **Mitigations:**

- a. Facility construction and operation plans shall meet local city/county design criteria, guidelines or standards for visual compatibility.(1)
- b. Prepare site specific EIR where impacts may be significant. (1)

## **12-8(1.9)      *Cultural Resources***

### **Impacts:**

1. **Construction** of a hazardous waste facility could cause the destruction or impede access to significant cultural resources.

### **Mitigation:**

- a. As part of the CEQA evaluation of a proposed new hazardous waste facility, identify the potential facility site's proximity to known cultural resources through a record search by the Northwest Information Center, Sonoma State University. On-site reconnaissance by an archaeologist may be required as part of the project assessment. Identify potential impacts to sensitive cultural resources from construction activities. If significant cultural resources are found at the site, follow CEQA guidelines for the mitigation of effects on historic and prehistoric archaeological resources. Preserving the site is more important than preserving the artifacts alone. (1)
- b. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of the county has been informed and has determined that no investigation of the cause of death is required. (1)

## **12-8(1.10)      *Health and Safety***

### **Impact:**

1. **Operation** - Human health and safety impacts concern possible effects of exposure to hazardous waste on workers at and visitors to facilities, and on individuals and immobile populations who work or live near hazardous waste management facilities. Sensitive receptors--children, the elderly, pregnant women, chronically ill persons--are of particular concern. Potential impacts include both long-term (chronic) and short-term (acute) health effects resulting from:
  - On-site incidents and accidents. Workers, visitors and off-site populations could be at risk.
  - Emissions into the air, water, or ground from normal operations of TSD facilities.
2. Improperly treated **wastewater effluent** could cause exposure impacts to the public from sewer system or evaporation pond vapors. Improperly treated discharges could affect human health indirectly by interfering with the water treatment process at local publicly owned treatment works (POTWs).
3. **Improper management** could result in accidents that create health risks. Improper management includes incorrect containerization, storage of incompatible substances together, lax security, or poor employee training.
4. **Recycling Facilities** could potentially expose the public and workers to toxic fumes, fire and hazardous waste spills.

5. Because **incinerators** can destroy 99.99% to 99.999% of hazardous materials through combustion, the addition of the 0.01% to 0.001% of the hazardous waste to the airshed of Santa Clara County will be an adverse impact upon the air. The estimates of throughput for an incinerator range from 5,000 to 100,000 tons per year. Thus, up to 10 tons of hazardous waste could be released from the largest incinerator every year. Another human health concern of the incinerator would be that metals would concentrate in the "bottoms" residue. Thus, another impact of incineration is the creation of hazardous wastes with high concentrations of metals such as lead and cadmium.
6. The end product of treatment facilities will end up at a **residuals repository**. After 1990, the residuals repository would accept only treated solid wastes. The wastes should be generally the inorganic, oxidized by-products of the various waste treatment processes. High concentrations of heavy metals would be present in a relatively nonreactive form. Potential impacts resulting from the development and operation of a residuals repository include fugitive dust, vapors leaving the site, and the possible contamination of ground water through leaching of improperly treated, stored, or contained residuals.

### **Mitigations:**

- a. The siting criteria discussed in Chapter 8 would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment (and public health and safety). (1,2,4,5,&6)
- b. Prepare site-specific EIR where impacts may be significant. (1,2,4,5,&6)
- c. Implementation of the plan, with its emphasis on adherence to the **Hazardous Waste Management Hierarchy**, would prove generally beneficial to human health and safety, for the following reasons. Long-term improvement in local health and safety would occur through reduction of improper hazardous waste disposal methods. (1,2,4,5,&6)
  - Transportation of hazardous wastes would be reduced;
  - The amount of waste requiring off-site treatment would be significantly less than that expected under the No-Project Alternative;
  - Waste reduction plans and public education, coupled with the county's technical assistance and enforcement programs, would ensure significant improvement in generators' safe handling of hazardous waste.
  - If regional agreements can be reached, Santa Clara County may be able to reduce significantly the number of in-county TSD facilities needed to manage county hazardous wastes.
- d. Prior to the siting of a facility, perform a **risk assessment** to identify hazards, pathways of exposure, and potential receptors, particularly sensitive receptors, and to calculate the health hazard risk for potentially exposed populations. Do not site a facility if health risks are found not to be within acceptable levels.(all)

The four steps of risk assessment identified in the Environmental Protection Agency's (EPA) Integrated Environmental Management Project (IEMP) were:

- Hazard Identification. Health evidence is researched to determine if enough evidence exists to link a specific chemical with specific health effects, and thereby determine whether it should be treated as a potential health hazard.
  - Potency Assessment. If evidence suggests a chemical to be hazardous, the adverse health effects associated with different doses of that chemical can be estimated. This dose-response assessment is expressed as that particular chemical's potency, the occurrence of a particular health effect per unit of exposure to that chemical. These potency values vary widely for different chemicals, health effects, and pathways of exposure.
  - Exposure Assessment. The number of people in the Santa Clara Valley likely to be exposed to these chemicals at particular concentrations through exposure pathways is then identified. Exposures are either measured directly, or are modeled using computer simulations.
  - Risk Estimation. With the first three steps completed, risks are then calculated in two ways. Individual risks are estimated by multiplying exposure and potency. Aggregate risk is estimated by multiplying individual risk by the number of people exposed at each level of exposure.
- e. Incorporation of **new hazardous waste reduction equipment** into existing installations and its operation must comply with the Uniform Building and Fire Codes and the local hazardous waste ordinance. (1,2,3,4)
  - f. **Construct and monitor all storage tanks** in conformance with federal, state and local regulations. (all)
  - g. In conformance with the regulations of the RWQCB **monitor and regulate discharges** of treated wastewater to the sewer system. (2,3)
  - h. Develop an emergency response plan and prepare a site operations plan (upon which the DHS Hazardous Waste Facility's permit is based) that identifies appropriate measures to separate treatable from untreatable wastes, and to separate incompatible wastes.(all)
  - i. For **recycling** facilities, if any on-site incineration is performed, comply with all BAAQMD regulations. (4)
  - j. Site a repository only in areas meeting the geologic and other requirements of the State Water Resources Control Board for Class-I waste management units. (6)

## **12-8 (1.11) Energy**

### **Impacts:**

1. Increases in **operational** energy usage associated with new recycling or waste treatment processes. Energy would be consumed on-site for on-site movement of materials; industrial processes; space heating/cooling; and lighting/small electrical equipment. Some treatment and recycling processes can be very energy-intensive. Off-site operational energy would be consumed by the vehicles, trucks and automobiles, that would serve each of the facilities.
2. Energy consumption during **construction** includes direct consumption through operation of construction machinery and worker vehicle trips to the site, and indirect consumption through the use of energy-intensive materials manufactured elsewhere would not be considered significant.

## Mitigations:

- a. Prepare site specific EIR where impacts may be significant. (all)
- b. Comply with Title 24 of the State Building Code regarding efficient design and construction. Optimize facility design to recycle materials and use less energy-intensive processes, where possible. (1)

## 12-8 (1.12) Public Services and Utilities

### Impacts:

1. Developing and operating hazardous waste facilities would increase the demand for **police** services. The demand would most likely affect the municipal police departments which patrol residential, commercial and industrial areas. Police responsibilities would include supporting the maintenance of facility security and assisting in emergency situations, particularly if evacuation were necessary.

The investigation of "environmental crimes", particularly the illegal management and disposal of hazardous materials and wastes, could increase police responsibilities. Police service resources also would have to be used to improve officers' and investigators' training in the safe and proper handling of suspected hazardous substances, and in the movement of populations and management of traffic in emergency situations.

2. Any new or expanded hazardous waste facility would increase the demand for **fire** protection in the industrial areas. Implementing hazardous materials inspection programs and providing services at incident scenes will increase the demand for **Health** Department services greatly. These services will be funded only partially through fees charged under the AB 2185/2187 Program. Increased program responsibilities and an expected increase in hazardous materials incidents could strain Health Department resources. Continued training of personnel and upgrading of equipment and facilities to respond to hazardous materials incidents will demand the dedication of more resources to maintaining these capabilities.
3. Locating a facility in an industrial area would increase the demand for **potable water**. The amount of increased demand will depend on the type of facility. It is not expected that the increased water demand will be significant compared to overall water demand.
4. **Groundwater contamination** is a serious problem in some parts of the Santa Clara Valley. Facilities sited in industrialized areas are potential sources of increased contamination. How great a risk for groundwater contamination any facility might pose depends on the type of facility, its size, the kinds of hazardous materials handled, and the kinds of operations performed at the site. Depth to groundwater and the permeability of soils at the location are also important factors in determining the risk of potential impacts.

Currently most of Santa Clara County's groundwater is taken from open space or residential areas, where there is less groundwater contamination. Provided the facility is not located close to open space or residential groundwater sources, or a groundwater recharge area, there is not likely to be an increase in contamination of the existing drinking water supply.

5. New or expanded hazardous waste facilities would likely increase the demand for **sewer service**, because the wastewater effluent would be discharged into the sewer system, unless the facility installs its own on-site sewage treatment plant. The level of impact would depend on the type and size of the facility.
6. A significant impact of a hazardous waste facility would be the potential for releasing **untreated hazardous effluent** to the local publicly owned treatment works (POTW). Depending on the toxicity of the substance, this occurrence could reduce or eliminate the POTW's ability to treat the sewage it receives effectively or completely. The result could be the discharge of untreated or undertreated sewage, likely including the hazardous waste causing the problem, into the surface waters of the county and San Francisco Bay.

### **Mitigation:**

- a. Implementation of the HWMP would result in a long-term improvement in the quality of the environment and reduce demand on public services through **reduction** of improper hazardous waste disposal methods. (all)
- b. Comply with RWQCB and Health Department regulations regarding **coordination** with local sewage treatment facilities to ensure that hazardous waste facilities' effluent will not create capacity problems for the local treatment works. (5,6)
- c. The anticipated increase in demand for **police** services following the siting of a facility in an industrial area is not expected to have a major impact. No mitigation would be required. (1)
- d. The county's and cities' Hazardous Materials Area Plans and Multi-Hazard Functional Plans shall be updated as required. (2)
- e. Comply with Title 22 of the California Administrative Code regarding the preparation of emergency response and evacuation plans. (1,2)
- f. Implementation of the HWMP regarding public education of hazardous waste generators on responsible management of hazardous wastes. (1,2)
- g. Comply with local regulation regarding **water conservation** measures at all facilities to ensure that water demand can be kept to a minimum. (3)
- h. Comply with the groundwater monitoring requirements of the State Hazardous Waste Facility Permit. (4)

### **Footnotes:**

/1/ California Department of Health Services, Guidelines for the Preparation of Hazardous Waste Management Plans. 1987.

/2/ Santa Clara Valley Water District, Groundwater Management in Santa Clara Valley, April 1987

## 12-8 (2) Transportation

**Policy 9-1:** Transportation of hazardous waste from the point of origin to the appropriate hazardous waste management facility shall be by the most direct route, utilizing state or interstate highways whenever feasible, and shall minimize distances along residential and other non-industrial frontages to the fullest extent possible.

**Policy 9-3:** Transportation routes to and from hazardous waste facilities should be designated as a part of the permitting process so as to minimize negative impacts on surrounding land uses.

**Note:** The Transportation aspect of the plan is described in chapter 9 of the HWMP. All mitigations that follow have in parenthesis the impact(s) for that particular environmental factor that they tend to reduce or moderate.

### 12-8 (2.1) Land use

#### Impacts:

1. The greater the **distance** between TSD facilities and sources of waste generation, the greater will be the risk of transport accidents or spills that might effect land uses along the route.
2. Long hauling distances to TSD facilities could increase **treatment costs**, inducing some generators to use unsafe or less effective disposal systems which may effect nearby land uses.

#### Mitigations:

- a. Comply with the HWMP policies relating to transportation described in Chapter 9.

### 12-8 (2.2) Flora & Fauna

#### Impacts:

1. **Accidents** involving the improper or illegal transport of hazardous wastes could be especially harmful, if these occur in areas where they are not easily detected or which are largely inaccessible. Biological and chemical contaminants could be released into the air and water wherever accidents occur. Important natural areas in the surrounding hillsides and near San Francisco Bay, wetland areas and streams, and areas supporting rare threatened and endangered species may be affected. Fires related to these accidents may affect similar areas.

#### Mitigations:

- a. Comply with the HWMP policies relating to transportation described in Chapter 9.

### 12-8 (2.3) Hydrology and Water Quality

#### Impacts:

1. Should an accident occur during transport, **release of hazardous waste to the environment** could result. Possible effects include contamination of surface water bodies, including reservoirs and streams, or infiltration into the soil, contaminating soil and ground water. The amount of material which would be released would probably be less than the

contents of a truckload if transport is by road or less than the contents of one or more railcars, if transport is by rail. The severity of the contamination which could result would vary with the specific type of hazardous waste, the amount released, and the location of the accident. Because solid wastes would be less likely than liquid wastes to travel any great distance if released, the most severe hazard would result from transport of liquid waste.

**Mitigations:**

- a. Comply with the HWMP policies relating to transportation described in Chapter 9. (1)
- b. Comply with the Hazardous Materials Area Plan and the Operations Section of the County Emergency Response Plan regarding a hazardous materials incident. (1)

**12-8 (2.4) *Transportation***

No significant impacts. The number of trucks expected to transport hazardous waste in Santa Clara County will have a minimal impact on traffic congestion. See subsection 3.10 for a discussion of the safety hazards associated with the truck traffic.

**12-8 (2.5) *Geology and Soils***

No significant impacts.

**12-8 (2.6) *Climate and Air Quality***

**Impacts:**

1. Hazardous waste transport trucks would generate emissions of criteria (regulated) **pollutants**.
2. Increased risk of emissions from hazardous waste **incidents** along designated transportation corridors.

**Mitigations:**

- a. The BAAQMD would determine, on a case by case basis, the need for modeling of concentrations of emissions of criteria pollutants, and of specific non-criteria pollutants. Direct emissions, indirect emissions, and proximity to sensitive receptors would be considered. (1)
- b. Comply with the HWMP policies relating to transportation described in Chapter 9.(2)
- c. Reduced risk of emissions from hazardous waste incidents in areas where hazardous waste transportation traffic has been limited or prohibited by Federal, State or local regulations. (2)

## **12-8(2.7) Noise, Vibration, Light, Glare, and Shadowing**

### **Impacts:**

1. Increased **congestion and noise** on local access routes or specific segments of major transportation corridors from hazardous waste transportation traffic. Given that hazardous waste facilities are likely to be sited near major transportation corridors, the relatively small number of trips relative to total truck traffic means that these trips would be unlikely to affect local average background noise levels (Ldn) .

### **Mitigation:**

- a. Comply with the HWMP policies relating to transportation described in Chapter 9. (1)
- b. Implement the policies of the HWMP supporting the establishment of an effective source reduction program in order to minimize the amount of hazardous waste that must be transported by generators for treatment, storage and disposal. (1)
- c. Comply with County/City noise ordinances. (1)

## **12-8(2.8) Visual/Aesthetic**

No significant impacts.

## **12-8(2.9) Cultural Resources**

No significant impacts.

## **12-8(2.10) Health and Safety**

### **Impacts:**

1. **Accident risk** - Transportation accidents of trucks hauling hazardous wastes are not uncommon in the United States. Data from the National Tank Truck Carriers (NTTC) indicate an accident rate (as of November 1983) of 1.13 accidents per million miles traveled for tank trucks and 1.41 accidents per million miles traveled for the trucking industry as a whole. /1/ An accident involving suspected hazardous materials or waste can cause traffic to stop in one or both directions for up to several hours, because of concerns about health or environmental effects from the release of these materials. In extreme cases, these accidents can lead to the evacuation of surrounding residents.

Santa Clara County is nearly 50 miles long, from north to south. Trucks are normally the sole method used for short shipments (average trip length = 100 miles). From a practical standpoint, then, all modes other than truck transport are effectively eliminated for intra-county shipment.

In the selection of potential routes, certain routes must be eliminated, if at all possible, because of legislation. Specifically, routes to be eliminated include those routes passing through or near heavily populated areas, places where crowds are assembled, tunnels, streets, or alleys.

/2/

State law mandates similar restrictions, namely: Transportation shall be by the most direct route, using state or interstate highways whenever possible. For transport within an urban area, exceptions to direct routes shall be made in order to avoid congested thoroughfares, places where crowds are assembled, and residential districts. /3/

In order to assess the risk of a hazardous waste incident [limited to wastes generated in Santa Clara County], it is necessary to know the accident rate, the potential land area affected and the population density. In addition, it is necessary to adopt a valid and unbiased methodology to assure that the safest route is selected. One methodology specifically developed for hazardous materials is that of the US Dept. of Transportation (Nov. 1980 "Guidelines for Applying Criteria to Designated Routes for Transporting Hazardous Materials")

Flammable gases and non-gaseous, non-radioactive, non-volatile hazardous materials are deemed to have an impact area 0.5 miles in radius. Non-flammable compressed gases, poisons, and corrosives have an impact area of 2, 0.3, and 0.7 miles respectively downwind, with a width of 1.3, 0.2, and 0.5 miles respectively.

Accident potential is computed by first breaking a proposed route into segments and then evaluating the accident risk on each segment. Different equations are used, depending on whether the segment is a freeway or a rural road. Tables 12-8.1 or 12-8.2 are used, depending on the type of road being considered, and the accident risks per million vehicle miles are multiplied by the segment length in miles to obtain accidents per million vehicles for that segment.

As a comparison, the following conditions lead to a theoretical rate of one accident per million vehicle miles: A four-lane, rural interstate with 24,000 ADT; an eight-lane, rural or a ten-lane, urban interstate with 84,000 ADT.

A non-interstate road cannot produce a rate as low as one accident per million vehicle miles, but for an ADT of 5,000, for example, a rural road would have an accident rate of 1.6 to 5.0 accidents per million vehicle miles, depending on terrain and speed. Thus, non-freeway roads result in an accident rate three times, more or less, that of freeways.

Accident rates on city streets are substantially higher, although usually of a "fender-bender", less severe type. A case-by-case evaluation, based on historic accident counts, is appropriate for local urban travel.

Total motor vehicle and truck accidents on federal and state highways for the past three years are summarized in Table 12-8.3. The truck accident rate in Santa Clara County is 332 per year over the past three years.

An annual rate of 320 accidents per year has been estimated for truck transportation of hazardous materials in California./4/ Also, approximately 5% of hazardous material truck miles involve the hauling of hazardous wastes./5/ Finally, 3.5% of California hazardous waste is generated within the County of Santa Clara./6/ Thus approximately 0.6 incidents per year involving hazardous waste occur in the County of Santa Clara.

**Therefore, approximately one hazardous waste incident can be projected to occur every two years in the county.**

**TABLE 12-8.1: PREDICTIVE PARAMETERS FOR INTERSTATE HIGHWAY ACCIDENTS EQUATION/a/**

<u>Rural/Suburban Interstates</u>	<u>"a"</u>	<u>"b"</u>
Four-Lane	0.83	0.007
Six-Lane	0.45	0.012
Eight-Lane	0.42	0.007
<u>Urban Interstates</u>		
Four-Lane	0.80	0.020
Six-Lane	0.80	0.011
Eight-Lane	0.73	0.007
Ten-Lane	0.16	0.010

/a/ Parameters "a" and "b" are inserted into the equation:

Accidents/million vehicle miles =  $a + b \times (ADT / 1000)$

ADT = average daily trips

SOURCE: U.S. Department of Transportation, 1980, Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials.

**TABLE 12-8.2: PREDICTIVE PARAMETERS FOR RURAL HIGHWAY ACCIDENTS EQUATION /a/**

<u>Terrain (fT)</u>	<u>Factor</u>
Level	0.80
Rolling	1.00
Mountainous	1.40
<u>Average Highway Speed (fS)</u>	
Under 55 mph	1.80
Over 55 mph	1.00

/a/ Factors inserted into the equation:

Accidents/million vehicle miles =  $(1.87 + 0.65/(ADT / 1000)) \times fT \times fS$

The traffic volume occurs in the denominator because the lower-volume roads are indicative of more dangerous roads, according to the source below.

SOURCE: U.S. Department of Transportation, 1980, Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials.

**TABLE 12-8.3: ACCIDENT RATES ON FEDERAL AND STATE HIGHWAYS  
IN SANTA CLARA COUNTY FOR 1985 THROUGH 1987.**

<u>Route</u>	<u>Segment Limits</u>	<u>Reported Accidents/a/ All Vehicles Trucks</u>		<u>Accident Rate Actual</u>	<u>(Accs/MVM/b/ Expected/c/</u>
SR-17	SR-9 to I-280	840	29	0.95	1.10
SR-85	I-280 to US-101	274	15	0.63	1.07
US-101	South of I-280	2,161	241	0.90	0.87
US-101	I-280 to I-880	1,017	78	2.09	1.24
US-101	I-880 to SR-237	1,758	82	1.42	1.05
US-101	SR-237 to SR-85	224	8	0.78	1.15
US-101	North of SR-85	685	36	0.93	1.26
SR-152	West of US-101	493	15	7.14	2.45
SR-152	East of US-101	481	148	1.21	1.50
SR-237	West of US-101	142	10	1.27	1.97
SR-237	US-101 to I-880	747	40	1.79	2.03
SR-237	I-880 to I-680	452	23	5.42	3.38
I-280	US-101 to SR-17	1,405	54	1.48	0.90
I-280	SR-17 to SR-85	1,411	31	1.18	1.32
I-280	West of SR-85	339	10	0.37	0.69
I-680	US-101 to SR-237	856	52	0.97	0.71
I-680	North of SR-237	104	6	0.47	0.88
I-880	I-280 to US-101	920	54	1.57	1.01
I-880	US-101 to SR-237	640	47	1.46	1.28
I-880	North of SR-237	236	18	0.91	1.25

**NOTES:**

/a/ Because the data cover three years, Reported Accidents Values are thrice annual rates.

/b/ MVM = Million Vehicle Miles traveled.

/c/ Expected rates are based on averaging accident data over a long term.

**SOURCE:** State of California, Department of Transportation, May 1988, TASAS printout.

2. **Differences among routes** - Plan implementation could reduce highway transportation of hazardous wastes countywide, but might have adverse effects on local access routes to new TSD facilities or on segments of major transportation corridors. On local access routes, the major impacts that could occur include congestion (from transport trucks and commuting workers), noise, light-and-glare, and threats to public health and safety from hazardous waste accidents or incidents.

Many segments of major highways in Santa Clara County are congested. It is not anticipated that hazardous waste truck transportation would involve enough trips per day to have a significant adverse impact on traffic on these highway segments (even on highway corridors where hazardous waste transport might increase), because of the extremely large traffic volumes now carried on these highways. Routes to specific proposed TSD facility sites, however, will have to be assessed in the future.

Even though the overall accident rate expected from hazardous waste transport is low, the risk would be unequally distributed. If segments of key, congested interstate routes are used for a larger proportion of hazardous waste transport, they would be more likely to suffer an accident or incident involving hazardous waste than other highway segments in the county. Because many of these highway segments are congested, the effects of such accidents or incidents of traffic would likely be severe, though temporary. The advantages of using interstate highways instead of non-freeway roads or urban streets for hazardous waste transport are that, in comparison with other highways or roads, their accident rates are significantly lower and their wider rights-of-way tend to isolate them more effectively from neighboring land uses, immobile populations and sensitive receptors. The additional buffering of interstate routes is important for reducing the potential impacts of highway accidents involving hazardous waste.

#### **Mitigations:**

- a. Comply with the HWMP policies relating to transportation described in Chapter 9. (all)
- b. Implement the policies of the HWMP supporting the establishment of an effective source reduction program in order to minimize the amount of hazardous waste that must be transported by generators for treatment, storage and disposal. (all)
- c. Hazardous waste haulers shall meet all pertinent federal and state safety requirements, including vehicle inspection, proper waste containerization and loading, and employee safety training. (all)
- d. Comply with the Hazardous Materials Area Plan and the Operations Section of the County Emergency Response Plan regarding a hazardous materials incident. (all)

#### **12-8(2.11) Energy**

No significant impacts.

#### **12-8(2.12) Public Services and Utilities**

No significant impacts.

**Footnotes:**

- /1/ C.Harvison, Director, National Tank Truck Carriers, telephone conversation, May 30, 1984.
- /2/ Code of Federal Regulations, Title 49, sect. 397.9.
- /3/ California Vehicle Code, sect. 31303(a)(1).
- /4/ U.S. Congress, Office of Technology Assessment, July 1986, "Transportation of Hazardous Materials", Report OTA-SET-304.
- /5/ U.S. Bureau of the Census, December 1986, "Statistical Abstract of the United States", Table 1042.
- /6/ State of California, Governor's Office of Appropriate Technology, 1981, "Alternatives to the Land Disposal of Hazardous Wastes, An Assessment for California".

## 12-9: Alternative Analysis

### No Project Alternative

This alternative implies that Santa Clara County will attempt to manage the amount of hazardous waste produced in 2000 with a 1986 management system. A comparison of 1986 treatment capacities and 2000 treatment needs reveals that the only effect on capacity requirement is the near doubling of the shortfall in "Aqueous Treatment, Metals/Neutralization" from a 7,000-ton to a 17,650-ton shortfall. This results from the loss of a proposed 6,200-ton increase in this general treatment method. Table 12.9.1 describes the projected capacity excesses or shortfalls that could be expected in the No-Project Alternative.

The most immediate and obvious effect of the No-Project Alternative is that somewhere outside Santa Clara County a set of facilities of the type and capacity listed in Table 12.9.1 would have to be available to treat, store and dispose of Santa Clara County's hazardous waste. Equally obviously, no locality in the county would have been subject to the impacts, described in Chapter 12-8, resulting from the expansion of existing facilities, or the siting, development and operation of new TSD facilities, whether on-site or off-site. Off-site facility expansion or development would be constrained.

It is very doubtful that this alternative would provide a net environmental benefit to Santa Clara County. Implementation of waste reduction requirements for generators could have negative impacts without the timely implementation of a coordinated generator-assistance / enforcement program. Under the No-Project Alternative, there would be neither a formal program for waste reduction, nor a generator assistance program. It is reasonable to suggest that this situation could cause a significant rise in the illegal storage and disposal of hazardous waste, with even more significant negative impacts on public health and safety and the environment.

Because it would be difficult for some generators to find facilities able to accept the kinds of wastes they produce, they would have little choice but to retain these wastes on their properties while waiting for an acceptable disposal alternative. (With the closure of Class I facilities in California, situations of this sort have already occurred.) Others, particularly some small-quantity generators, would weigh the high costs of proper treatment and disposal of their hazardous waste against the probability of facing enforcement action, and likely would choose what would appear to be the less costly alternative: improper or illegal disposal.

In Santa Clara County, the No-Project Alternative would likely cause significant effects, other than those foreseen in the Preferred Alternative, in the following impact categories: Natural Resources / Parks; Flooding, Storm Drains and Water Quality; Flora and Fauna; Transportation; Human Health and Safety; Public Utilities / Services.

Natural Resources / Parks: Natural Areas could suffer significantly greater adverse effects than in the Preferred Alternative, because the incidence of illegal/improper disposal would likely increase significantly in this Alternative.

Flooding, Storm Drains and Water Quality: Illegal disposal practices, either "midnight dumping" or the improper release of hazardous effluent, could have significant direct and indirect impacts on water quality in wetlands, streams, rivers, creeks, and San Francisco Bay.

**Table 12.9.1: No Project County Needs Assessment for Commercial Hazardous Waste Treatment / Disposal Capacity**

<u>Generalized Treatment Method</u>	<u>Required/a/ (2000) Treatment Capacity (tons/year)</u>	<u>Existing/b/ (1986) Treatment Capacity</u>	<u>Capacity Excess (+) or Deficiency/c/</u>
Aqueous Treatment--Organic	470	0	-470
Aqueous Treatment--Metals/Neutralization	38,520	20,870	-17,650
Incineration	14,030	250	-13,780
Solvent Recovery	28,630	23,100	+5,500
Oil Recovery	76,680	0	-76,680
Other Recycling	37,010	410	-36,600
Stabilization	11,210	21,040	+9,830
Residuals Disposal	62,620	0	-62,620

/a/ Table 5-3 and 5-4, Chapter 5, Santa Clara County HWMP

/b/ Table 6-4, Chapter 6, Santa Clara County HWMP

/c/ Rounded to nearest ten.

SOURCE: HWMP

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**Flora and Fauna:** Impacts on the environment caused by illegal or improper disposal practices could have a negative effect on threatened and endangered species, particularly insofar as these are dependent on water-related environments.

**Transportation:** Both legal and illegal transportation of untreated hazardous wastes would be significantly greater under this scenario. Chances of an accident involving a vehicle carrying hazardous wastes would increase. Perhaps more important, the likelihood that accidents involving vehicles carrying hazardous wastes would result in more serious hazardous materials incidents would increase as well.

**Human Health and Safety:** Increased transportation and the likely increase in the illegal and improper disposal of hazardous wastes would increase the risk of adverse human health effects for workers, emergency response personnel and the public at large. Without the implementation of any effective hazardous waste management strategy, the situation could become chaotic, resulting in the public's being forced to play a sort of "hazardous-waste Russian roulette."

**Public Utilities / Services:** POTWs could suffer particularly significant adverse effects under the No-Project Alternative, with extremely bad effects on water quality, threatened or endangered species, or human health and safety. Emergency response and public safety services (police, fire,

toxic spill response, health) would be subject to a significantly greater service burden, coupled with increased risk of injury to emergency response workers.

### **Minimum Waste Reduction Alternative**

The Minimum-Waste-Reduction Alternative really implies that Santa Clara County would abandon its emphasis on the priority of the Hazardous Waste Hierarchy in favor of a strategy of in-county, off-site treatment. Should the county enter into a regional "fair-share" agreement with other Bay Area counties, residuals and, perhaps, incinerable waste could be exported to other counties. This would imply that the county would have to provide sufficient capacity in other waste-treatment facility types to accept those wastes from other counties, on a reciprocal basis.

Failure to achieve a "fair-share" agreement with other counties in the region (or elsewhere in the state) would force Santa Clara County and its generators either to site and develop the full range of TSD facilities needed to make up the capacity shortfalls identified in the HWMP (See Chapter 12-4(2)) within Santa Clara County or provide for the treatment, storage and disposal of hazardous waste through some combination of new/expanded in-county facilities and the export of hazardous waste to TSD facilities elsewhere in California or the U.S.

The impacts of these options would likely be increased costs, particularly for the transportation of exported wastes, and greater local impacts from the siting and operation of in-county TSD facilities. One should note as well that dependence on TSD facilities outside the state to accept the county's wastes risks the loss of access at some time in the future. Ultimately, the county will have to accept some costs -- economic and environmental -- to deal responsibly with its hazardous wastes. The purpose of preparing and implementing the county's HWMP is to set a system in place that might minimize both the environmental and economic impacts of managing those wastes.

The major impact from this alternative would be that more extensive expansion and development of off-site TSD facilities would have to take place, with all those effects described in Chapter 12-8(2) above, at a greater intensity. On the assumption of a 10% reduction across the board, the need for an aqueous treatment facility would be less acute, while solvent recovery would be operating at about 85% of capacity.

This strategy would require that the cost of off-site TSD facilities could remain constant and relatively attractive when compared to source reduction. Even relatively moderately priced TSD services could prove too expensive for many generators, particularly SQGs. Unless sufficient resources were invested in regulatory compliance enforcement, illegal or improper hazardous waste disposal could still present a significant problem.

Particularly noteworthy would be transportation impacts, especially those from accidents, since most waste shipped off-site would be untreated; emergency response impacts, since both transportation- and facility-related emergency-response demand would increase; and impacts on human health and safety. These impacts likely would not be as significant as in the No-Project Alternative, but more significant than in the Preferred Alternative.

Impacts in the following categories would be either more likely, or be greater or more widespread, than in the Preferred Alternative: Land Use / Location; Housing; Geology, Soils, and Seismicity; Natural Resources / Parks; Flooding, Storm Drains and Water Quality; Flora and Fauna; Air Quality; Noise, Vibration, Light and Glare, and Shadowing; Visual / Aesthetic; Cultural; Energy; Public Utilities. Impacts of a type different from those described in the Preferred Alternative would not be anticipated.

The achievement of regional agreements on the treatment, storage and disposal of hazardous waste could reduce the need for some facilities in Santa Clara County, and thus offset or eliminate some facility siting impacts. Impacts from on-site treatment and recycling facilities would be minimal, since one would expect these to develop very little in this alternative. Transportation impacts, however, and their effects on emergency services demand and human health and safety, would still be greater than in the proposed HWMP.

### **Maximum Facility Development**

This alternative suggests that a Bay Area regional approach to hazardous waste management is not realized and the county chooses to "go it alone" in siting and developing a full range of TSD facilities, including a residuals repository. A variant of this alternative could assume that Santa Clara County would oversize its facilities to a significant extent in order to become a large net importer of hazardous waste. The rationale behind this strategy would be economic: The provision of TSD services to out-of-county generators would help to finance county programs and in-county facilities for its own generators.

This strategy would have significant environmental, social and political impacts. Individual and cumulative impacts would be as described in Chapter 12-8, but the overall effect would be more intense. Although a 10% reduction in hazardous-waste generation is assumed in this alternative, it is conceivable that Santa Clara County could become a significant hazardous-waste importer and achieve significantly greater reductions in the waste produced by its own generators. In that case, one would assume that the county's waste reduction and enforcement programs would be supported primarily from fees collected from the county's commercial TSD facilities, while these facilities would be supported to a significant extent by out-of-county generators.

This scenario suggests that a significant development of county TSD facilities might help to reduce illegal or improper waste disposal in the county, because treatment and disposal would be available at a relatively inexpensive price and well-financed technical assistance and enforcement programs would be available. The trade-off required would be the acceptance of significant impacts from TSD facility development and operations, including the image of the county as the region's hazardous waste "dump." This tradeoff might not be acceptable politically. The gain might not be worth the price, and the environmental effects of this alternative would appear to be significantly greater than those of the proposed HWMP in all environmental categories.

## **12-10: Significant Irreversible Environmental Changes**

Implementation of the HWMP would require siting and building significant off-site TSD facilities, either within or outside of Santa Clara County, and an undisclosed number of on-site treatment and recycling facilities within the county. While an effective waste reduction program may reduce the need for treatment, storage and disposal facilities, it will not eliminate that need. While most, perhaps all, of the impacts of individual TSD facilities can be mitigated, such mitigation cannot eliminate all the risks attendant on the management and disposal of hazardous waste.

The movement of hazardous wastes, and the processes required to treat and finally dispose of them, unavoidably raise the risk of accidents and incidents involving hazardous waste, with resulting hazard to the population. The Plan reduces overall risks from hazardous waste to public health and the environment, but conceivably could increase the risks of hazardous waste accidents or incidents within a locality where a TSD facility might be located. Even with the implementation of mitigation measures, risks at such (new) locations might remain greater than prior to Plan implementation, if a facility were introduced into an area that previously had had little, if any, hazardous waste.

In addition, implementation of the county's waste reduction program could increase risks in areas where significant hazardous waste generators operate. These generators are not normally in the business of treating hazardous waste. On-site facilities for treatment or recycling, while contributing to the county's waste reduction goals and reducing hazardous waste transportation hazards, could increase on-site operational hazards, since generators would need to develop the operational and management expertise for these processes. Presumably, as the operators of on-site facilities gained experience with these processes, the likelihood of potential impacts from operational accidents or shortcomings would be reduced. The use of mobile treatment units, operated by established TSD firms, might reduce potential operational impacts from on-site facilities as well.

## **12-11: Short Term vs. Long Term**

The stated purpose of Santa Clara County's HWMP is to protect public health and safety and the environment while maintaining economic viability. On-site TSD facilities will be operated at existing industrial properties. Off-site TSD facilities would likely be located in industrially zoned areas. Siting facilities in these areas would locate them close to sources of hazardous waste generation and in areas most compatible for these kinds of operations.

Implementation of the Plan would provide a responsible, integrated and environmentally sensitive program for managing hazardous waste in Santa Clara County. Local short-term uses of the environment, such as facility siting and development, would likely have adverse impacts locally, but these facilities are needed to implement the Plan, and achieve net environmental benefits to the county, region and state. Most impacts arising from facility development and operations would be mitigable (See Chapter 12-8).

The provision of programs to reduce waste and of TSD facilities to manage it will reduce the cost of waste management generally and help to maintain and enhance the long-term productivity of the environment.

## 12-12: Growth Inducing Impact

The direct or indirect growth resulting from the HWMP is dependent on the causal relationship between the siting of commercial off-site Hazardous Waste Management facilities and the subsequent industrial development of facilities that generate hazardous waste. For two California communities, the Casmalia Resources facility in Santa Barbara County and Chemical Waste Managements' Kettleman Hill facility in Kings County, it is clear that availability of these major disposal facilities has not precipitated a major influx of industrial facilities that generate hazardous waste.

One may infer that hazardous waste management facilities are developed in response to the perceived market needs of hazardous waste generators rather than that industries locate in an area where there are pre-existing hazardous waste management facilities. Thus it is uncertain that the siting of new hazardous waste management facilities in the county would induce growth of new industrial generators of hazardous waste.

The Plan also calls for a substantial effort to reduce the amount of waste generation through the adoption and implementation of the Hazardous Waste Management Hierarchy (HWMP, Chapter 7). Although the Plan identifies potential reductions from 10% to 40% of the "base case", experience by the County of Ventura indicates that for that community, a reduction of up to 70% of the total industrial waste stream is possible. Should Santa Clara County industries achieve significant levels of reduction, it is possible that their economic competitiveness could be enhanced. This may lead an increase in demand for their products and a subsequent demand for more workers. It is not clear if such a demand for more workers would result in more growth in the population. What may occur is a large number of the existing population may re-enter the labor force or workers living outside of the county may commute into Santa Clara County.

The Plan also identifies site clean-up efforts as requiring a large but undocumented level of waste management. It is possible that a specialized hazardous waste management industry will be developed to treat the wastes from these sites. Although the volumes of waste for some of these sites are quite large, it is not clear as to whether the clean-up efforts will result in a one-time response (e.g. a transportable treatment unit or the use of in-situ treatment) or lead to the development of additional hazardous waste management capacity.

## 12-13: Cumulative Impact

"Cumulative impact" normally refers to the anticipated incremental effects of a project when added to other closely related past, present, and reasonably foreseeable probable future projects. For the Santa Clara County HWMP, it would be most appropriate to consider the cumulative effects of Plan implementation with regard to the individual projects -- TSD facilities -- it would likely encourage.

As appropriate, individual sections of this EIR take into account the level of development in 2000, then consider the effects of HWMP implementation, particularly facility development, on that situation. Individual sections also discuss the development of a "mega-facility" and its effects.

The level of economic and population growth anticipated in Santa Clara County to the year 2000 indicates that adding several types of TSD facilities (on-site and off-site) might not have significant impacts when compared to industrial development on a county-wide basis. It is not possible to determine whether individual facilities located in industrially zoned areas of the county might have significant cumulative impacts in those areas.

Two situations, however, could more likely result in significant local cumulative impacts:

- The development of a "mega-facility", a large, multi-purpose facility containing several types of TSD facilities, could have a significant cumulative effect on the locality in which it is sited, in the "normal" sense of the concept, when the project's impacts are added to future conditions external to it. Specifically, when it is added to the existence or development of other industrial facilities, the cumulative adverse effects of such a facility on local traffic volume, sewage treatment capacity, emergency services, or air quality could be significant.

On the other hand, if such a facility were located strategically, it could reduce the potential risks of hazardous waste transport incidents county-wide by shortening trip lengths or reducing the number of trips needed; or, although placing a greater burden on local emergency response services, such a facility could permit a more efficient incident response capability by emergency services areawide. The potential cumulative impacts, both favorable and adverse, of large, multi-purpose facilities will have to be evaluated carefully on a case-by-case basis.

- Cumulative effects on a locality could be also of an internal nature, that is, effects produced by a mega-facility as a composite of several individual TSD-facility developments. The question here is whether the environmental impacts of a "mega-facility" might be greater than the sum of the potential effects of its individual constituent facilities. This possibility would require careful analysis, particularly with respect to the types, likelihood and prevention of on-site accidents. Should certain types of facilities, such as, for example, those that handle reactive or explosive materials, never be sited with other facility types? The analysis of a "mega-facility" development will have to consider any potential synergistic effects of locating several facilities together at the same site.

## 12-14: EIR Authors and Persons Consulted

This EIR report was prepared by and under the direction of Hugh Graham, Senior Planner in the County Department of Planning and Development. Contributors from the County Hazardous Waste Planning staff included Isao Kobashi [Program Manager], Rory Kessler and James Zavagno. The prior EIR, which was substantially revised for this document, was prepared by Environmental Science Associates, Inc.

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- City of Palo Alto, Police Department
- County of Santa Clara, Sheriff's Department

References are cited separately in each subsection of this EIR.

## Appendix A : Glossary

ABAG	Association of Bay Area Governments.
ADT	Average Daily Trips.
ALUC	(Santa Clara County) Airport Land Use Commission.
Ambient	Existing conditions of air, water and other media at a particular time.
Ambient Air Quality Standards	Specified maximum average concentrations of pollutants over stated lengths of time, allowed by air quality regulations of local, state or federal agencies.
Aqueous Treatment, Organic	Treatment method by which organic compounds, such as hydrocarbons, are removed from water. Organic compounds may be re-refined for reuse.
Aqueous Treatment, Metals/Neutralization.	See "Neutralization".
ARB	(California) Air Resources Board.
Authority to Construct	An authorization, issued by Air Pollution Control Districts and Air Quality Management Districts, which is required prior to construction of proposed facilities which will emit a significant amount of pollutants to the atmosphere.
BAAQMD	Bay Area Air Quality Management District.
BACT	Best Available Control Technology; BACT refers to the technical processes and/or equipment used to control pollutant emissions. BACT is most often used to refer to air-pollution control, but sometimes refers to water-pollution control.
Btu	British Thermal Unit; the amount of energy (heat) needed to raise the temperature of one pound of water, at an initial temperature of about 39F, by one degree F.
Btu/hr	British Thermal Units per Hour; a rate of energy use or production.
CAA	(Federal) Clean Air Act.
CAC	California Administrative Code. After January 1, 1988, referred to as California Code of Regulations (CCR).
CDMG	California Division of Mines and Geology.
CEQA	California Environmental Quality Act.
CERCLA	(Federal) Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund).

CESA	California Endangered Species Act.
Chemical Treatment	Treatment processes which alter the chemical structure of hazardous waste constituents to produce innocuous or less hazardous materials.
CHP	California Highway Patrol.
CNEL	Community Noise Equivalent Level; a noise-averaged measure of environmental noise emitted over a 24-hour time period. The averaging technique imposes a five dBA penalty (weighting) for noise emitted between 7 and 10 p.m., and a ten dBA penalty for noise occurring between 10 p.m. and 7 a.m. CNEL is similar to L <sub>dn</sub> (see below).
CO	Carbon monoxide; a toxic gas which is a product of combustion.
COAT	California (Governor's) Office of Appropriate Technology.
Criteria Pollutant	An air pollutant for which there is considered to be a safe level of exposure and for which standards have been set. Current criteria pollutants are sulfur oxides, particulate matter, carbon monoxide, nitrogen oxides, ozone, and lead.
dB	Decibel; a measure of sound intensity. See also <u>dBA</u> .
dBA	A-weighted decibel; a measure of sound intensity which takes into account the response of the human ear to sound. See also <u>dB</u> .
Developer	A person, government unit, or company that proposes to build a hazardous waste treatment, storage, or disposal facility.
DHS	(California) Department of Health Services.
Discretionary Project or Permit	A project or permit which requires the use of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity, as distinguished from situations ("ministerial") where the public agency or body merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations.
Disposal	Abandoning, depositing, interring, or otherwise discarding waste as a final action after use has been completed or use is no longer intended.
Disposal Site	The location where any final deposition of hazardous waste occurs.
DOT	(Federal) Department of Transportation.
Effluent	Partially or completely treated water, as released or discharged to the land or water.
EIR	(California) Environmental Impact Report.
EIS	(Federal) Environmental Impact Statement.

Emission Offset	An air pollution control tradeoff. An offset is an emissions reduction made at a nearby existing unit or facility in compensation for a new emissions increment (addition) at an existing facility or an emission at a new facility.
EPA	(United States) Environmental Protection Agency.
ESA	(Federal) Endangered Species Act.
Fair Share Agreement	An agreement among local governments to apportion responsibility for the treatment, storage and disposal of various types of hazardous waste on a regional and mutually equitable basis.
Feedstock	A material fed into a processing unit to be acted upon by that unit.
FEMA	Federal Emergency Management Administration.
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act.
Generator	The person or facility who, by nature or ownership, management, or control, is responsible for causing, or allowing to be caused, the creation of hazardous waste.
Hazardous Waste	A waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may either: (a) Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or (b) Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.
Hazardous Waste Management	The systematic control of the storage, transportation, processing, treatment, collection, source separation, recovery and disposal of hazardous wastes. It includes administrative, financial, legal, and planning activities as well as operational aspects of hazardous waste handling, disposal, and resource recovery systems.
Hazardous Waste Management Hierarchy	Systematic prioritization of methods to manage hazardous waste. Management priorities, from the most favorable to the least favorable are: <u>source reduction, recycling, treatment, and residuals disposal.</u>
HC	Hydrocarbons.
H & S Code	(California) Health and Safety Code.
Heavy Metals	Certain metallic or other elements, which have a high density and are generally toxic; for example, lead, silver, mercury and arsenic.
HMTA	(Federal) Hazardous Materials Transportation Act.
HSWA	Federal Hazardous and Solid Waste Amendments (to the Resource Conservation and Recovery Act).
HWCL	(California) Hazardous Waste Control Law.

HWM	Hazardous waste management.
HHW	Household hazardous waste.
HWMP	Hazardous waste management plan.
Hydrologic Continuity	A pathway or subsurface stratum that allows the relatively free movement of water, or at least does not prevent or substantially hinder such movement.
ICC	A pathway or subsurface stratum that allows the relatively free movement of water, or at least does not prevent or substantially hinder such movement.
ICC	(Federal) Interstate Commerce Commission
IEMP	(Santa Clara Valley) Integrated Environmental Management Project.
Incineration	Various processes by which hazardous or solid wastes are burned to reduce their volume and destroy their hazardous components. Leftover ash is a residual that must to be disposed of in a proper manner.
Inert	Exhibiting no chemical activity; totally unreactive.
LAC	Local Assessment Committee (see below).
LAFCO	Local Agency Formation Commission.
Land Disposal Method	Disposal, storage or treatment of hazardous wastes on or into the land.
L <sub>dn</sub>	Day-night equivalent noise level; a noise-averaged number for environmental noise emitted over a 24-hour time period. The averaging technique imposes a ten dBA penalty for noise occurring between 10 p.m. and 7 a.m. See also <u>CNEL</u> .
Leachate	The liquid that leaks out of a landfill. Leachate frequently contains contaminants dissolved from the waste in the landfill.
Local Assessment Committee	A seven-member body appointed by the local legislative authority responsible for deciding on permits for a proposed TSD facility. The LAC's membership and duties are described in the Tanner Bill (Health & Safety Code, ^ 25199.7(d) et seq.) The basic role of the committee is to represent the interests of the residents of the city or county in which the TSD facility is proposed.
L <sub>eq</sub>	Energy-equivalent-noise level; an averaged sound level which contains the same energy content as a time-varying noise level over the same period.
Memorandum of Agreement	A written record between or among administrative agencies which clarifies or establishes joint procedures or authorities necessary to administer a program.

Ministerial Project or Permit	Involves governmental decision involving little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented, but uses no special discretion or judgment in reaching a decision. A ministerial decision involves only the use of fixed standards or objective measurements, and the public official cannot use personal, subjective judgment in deciding whether or how the project should be carried out. Common examples of ministerial permits include building permits (in some situations), automobile registrations, dog licenses, and marriage licenses.
MGD	Million Gallons per Day, a rate of flow or treatment capacity commonly used to measure water use or wastewater flows or treatment capacities.
MOU	Memorandum of understanding. Equivalent to a memorandum of agreement.
NAAQS	National Ambient Air Quality Standard.
NESHAPS	National Emissions Standards for Hazardous Air Pollutants.
Neutralization	A treatment technology whereby acids and alkalis are reacted to form salts and water with a pH approaching neutral.
New Source	Within the context of air pollution control, this refers to a new facility or a modification of an existing facility which is a source of air pollution. (May cause restrictions on the development of some hazardous waste facilities.)
New Source Review	A review process by which the BAAQMD ensures that the construction or modification of a major air emissions source (a source which emits more than a prescribed number of pounds per day) will not interfere with either the maintenance or attainment of ambient air quality standards.
Nonattainment Area	Area whose ambient air levels of specific pollutants exceed federal or state standards. (May be difficult to approve certain kinds of hazardous waste facilities, such as incinerators, in nonattainment areas.)
NOAA	National Oceanic and Atmospheric Administration.
NO <sub>x</sub>	Oxides of nitrogen; a general designation that includes several chemical compounds of nitrogen and oxygen produced as by-products of combustion. See also <u>NO<sub>2</sub></u> .
NO <sub>2</sub>	Nitrogen dioxide; an air pollutant produced as a by-product of combustion.
NPDES	National Pollutant Discharge Elimination System.
NSR	New Source Review.
Oil Recovery	Process by which contaminants, including heavy metals, are removed from used oil to render it usable again.

Offset	See "Emission Offset."
Operator	A person, government unit, or company that conducts treatment, storage or disposal. The operator may or may not be the developer of a TSD facility.
Organic	Chemical substances of synthetic, animal or vegetable origin, of basically carbon structure, including hydrocarbons.
OTA	(Federal) Office of Technology Assessment.
Permit to Operate	An authorization, issued by Air Pollution Control Districts and Air Quality Management Districts, which is required before operation of a facility and is contingent upon a demonstration that the facility can comply with applicable rules and regulations and with conditions imposed in the Authority to Construct.
POTW	Publicly Owned Treatment Works.
ppm	Parts per million, a unit of concentration by volume (sometimes by weight).
Project Population Excess Lifetime Cancer Burden	The sum of the products of the number of people in each population group exposed to anticipate concentrations of carcinogens and the Project Population Excess Lifetime Cancer Risk for each carcinogen.
Project Population Excess Lifetime Cancer Risk	The estimated probability that any member of a population constantly exposed to an anticipated concentration of a carcinogen over a 70-year period might contract cancer as compared to the same member's risk were the population not so exposed.
RCRA	(Federal) Resource Conservation and Recovery Act of 1976.
Recycling	The use, reuse, or reclamation of a hazardous waste, or a substance from a hazardous waste.
Residuals	Materials left over after treating hazardous waste to reduce its toxicity, solubility, and/or volume.
Residuals Repository	A hazardous waste disposal facility specifically restricted to receiving only residuals from hazardous waste treatment facilities. Potentially, wastes could be kept segregated to allow eventual reclamation.
RWQCB	Regional Water Quality Control Board.
Scrubber	A unit which removes an undesired substance or substances from a gas by dissolving the substance in a liquid "scrubbing" agent.
SCVWD	Santa Clara Valley Water District
SDWA	(Federal) Safe Drinking Water Act.

SIP	State Implementation Plan (to demonstrate attainment and maintenance of NAAQS).
Solidification	A treatment process for limiting the solubility of or detoxifying hazardous wastes by producing blocks of treated waste with high structural and chemical integrity.
Solvent	A substance used for dissolving another substance.
Solvent Extraction	Treating a solid or liquid waste to extract the hazardous substances into a solvent so that the bulk of the waste stream may be discarded as non-hazardous.
Solvent Recovery	A process for separating liquids with different boiling points by preferential distillation.
SO <sub>2</sub>	Sulphur dioxide.
Source Reduction	Reduction of the amount of hazardous waste to be exported from a generator's facility or home by one or more of the following methods: Raw material substitution; improved methods for handling hazardous-waste-generating materials; closed-loop recycling to continually reuse a hazardous material, and on-site treatment.
Stabilization	A treatment process for limiting the solubility of or detoxifying hazardous wastes by adding materials which ensure that hazardous constituents are maintained in their least soluble and/or toxic form.
SQG	Small-quantity generator (of hazardous waste). A small-quantity generator is one producing less than 1,000 kilograms of hazardous waste per month.
SWRCB	(California) State Water Resources Control Board.
TBACT	Best Available Control Technology for Toxic air contaminants.
Tiering	Refers to the coverage of general matters in broader EIRs (such as on general plans or policy statements), followed by subsequent narrower EIRs or ultimately site-specific EIRs incorporating by reference the general discussions and concentrating solely on the issues specific to the EIR subsequently prepared.
Toxic	Capable of producing injury, illness, or damage to humans, domestic livestock or wildlife through ingestion, inhalation, or absorption through any body surface.
Toxic Air Contaminant	An air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.
TSCA	(Federal) Toxic Substances Control Act.
TSD	Treatment, storage and disposal facility

USGS	United States Geological Survey.
UST	Underground storage tank.
VSQG	Very-small-quantity generator. A generator of hazardous waste which produces less than 100 kilograms of hazardous waste each month.
Waste Exchange	Clearinghouse approach to transferring treated and untreated hazardous wastes to an industrial use for use as a new material. (One method of waste reduction.)
Waste reduction	See "source reduction."



## CHAPTER 13

### NEGATIVE DECLARATION

The County prepared a County Hazardous Waste Management Plan (CHMWP) in 1989 pursuant to 1984 legislation (AB 2948). State law requires the State Department of Health Services (DHS) to approve local Plans which must meet certain prescribed requirements to be approved.

This project involves changes to the Santa Clara County Hazardous Waste Management Plan (CHWMP) to reflect modifications necessary to meet DHS approval requirements. The changes deal primarily with the criteria to be used to evaluate the suitability of a proposed site as a hazardous waste management facility location.

There are five types of changes to the Plan. Changes have been paraphrased here. The exact wording can be found on the pages in the original Plan that are indicated after each specific change.

**(1) Siting criteria that are more permissive:**

- a. The original Plan states: Hazardous waste facilities shall be located on major paved roads. (Plan, pp. 8-12 and 8-19)

Changes to this siting criteria would allow a facility to be located, to the maximum extent possible, in close proximity to major paved roads.

- b. The original Plan states: Hazardous waste facilities shall not be located in areas where slope exceeds 15%. (Plan, pp. 8-14 and 8-21)

Changed to: Facilities may be allowed if "site-specific factors mitigate the impact of the site's slope."

- c. The original Plan states: Hazardous waste facilities shall not be located in areas having particular cultural, aesthetic, historical, or archaeological significance. (Plan, pp. 8-13 and 8-20)

Changed to: Low-volume transfer and storage facilities may be allowed in such areas, if necessary to handle hazardous waste generated by visitors, workers, or residents, thereof. Other types of hazardous waste facilities would not be permitted.

- d. The original Plan states: Hazardous waste management facilities shall not be located on prime agricultural lands. (Plan, pp. 8-13 and 8-20)

Changed to: Facilities may be sited on prime agricultural lands if the local jurisdiction makes a finding that an overriding public need is served by allowing the facility to be located on the proposed site.

**(2) Siting criteria that are more restrictive:**

- a. The original Plan states: Facilities shall not be sited within the cone of depression created by pumping of a well or well field for 90 days. "Well or well field" was originally defined as wells used to extract underground drinking water supplies. (Plan, pp. 8-15 and 8-22; definition in Appendix VIII-C)

Changed to: Redefine "well or well field" to include "drinking water, irrigation, and remediation and monitoring wells."

**(3) Minor language changes:**

These minor language changes serve to clarify the intent and requirements of a particular siting criteria or provide consistency in language in the document, but do not change the criteria.

**(4) Deletion of a criteria and a map:**

The criteria entitled "Protection of Existing Groundwater Quality," and its accompanying map, entitled "High Priority Protection Areas in Santa Clara County," have been deleted. (Plan, pp. 8-15 and 8-21; and map on p. 8-25)

**(5) A policy change:**

An additional policy was added to the Plan to clarify that the County Supervisors Association of California (CSAC) "Fair Share" language used in the Plan is only operative in conjunction with interjurisdictional agreements. (Plan, p. 6-28)

The original "Fair Share" language (developed jointly by the counties and CSAC) in the County's Plan states that the County reserves the right to deny a land use permit for a facility proposed to be sited in the county if the volume of waste proposed to be managed at the facility is greater than the volume of waste that has been identified as the County's shortfall waste management capacity.

Since the original Plan was written, the County has signed a Memorandum of Understanding (MOU) with the other eight counties within the Bay Area to form the ABAG Regional Fair Share Allocation Committee. This Committee has been created to allocate the responsibility for siting the regionally-sized hazardous waste management facilities that will be needed to serve identified regional shortfalls in waste management capacity within the ABAG region, to the year 2000.

The additional policy language reflects a regional approach to facility siting. The MOU states that:

- The County will enter into interjurisdictional agreements (with the eight other participating counties within the ABAG region) that would allow for the fair allocation of responsibility for the siting of needed hazardous waste management facilities;
- Santa Clara County reserves the right to deny a land use permit for a facility proposing to manage a volume of waste greater than the identified waste management capacity shortfall of the County, unless the County has agreed, through an interjurisdictional agreement, to accept responsibility for siting a facility whose volume exceeds the County's shortfall.

#### **(6) Specific Criteria Changes**

The following specific considerations are numbered to correspond with the specific, numbered changes that are listed in the Project Description of this document:

- a. Changes in the siting criteria that have been described in the Project Description as more permissive:

##### **(1) Major paved roads**

This change would not be expected to result in an increased potential for a negative environmental impact because the areas of the county without easy access by major paved roads would tend to be protected by other Plan siting criteria, such as zoning, slope, soils permeability, watershed areas, and others.

##### **(2) Slope exceeding 15%**

This change would not be expected to result in an increased potential for a negative environmental impact because those jurisdictions that allow similar industrial uses, in areas where slope exceeds 15%, have experience in prescribing and evaluating the performance of the engineering containment

features, inspections measures and other environmental protection controls that would be required to mitigate any potential impacts.

(3) Storage and transfer in areas of cultural significance

This change would not be expected to result in an increased potential for a negative environmental impact because the change would allow a commercial hazardous waste operator to collect and transfer only those wastes that are already being generated in such an area. No treatment or disposal of hazardous wastes would be allowed in these areas.

(4) Prime agricultural lands

This change would not be expected to result in an increased potential for a negative environmental impact because adequate policies and plans exist for protection of prime agricultural land. Siting a hazardous waste facility in such an area would require changes in the General Plan of the jurisdiction.

b. Changes in the siting criteria that have been described in the Project Description as more restrictive:

(1) Well and well fields

This change would result in protection of a wider range of types of wells and well fields from potential contamination by a release from a nearby hazardous waste management facility, by expanding the definition of "well" to include nondrinking water wells as well as drinking water wells.

c. Minor language changes which will serve to clarify the intent and requirements of a particular siting criteria but will not change the criteria:

- Will serve to avoid confusion during the siting process, and
- Will not result in a negative impact on the environment.

d. Deletion of the criteria which will not result in a negative impact on the environment:

"Existing groundwater quality" is a redundant criteria. Groundwater quality is already adequately protected by a number of other siting criteria:

- Protection of watershed areas
- Protection of major groundwater recharge zones
- Proximity to wells and well fields
- Protection of surface waters

- Protection of floodplain areas
- Protection from permeability of strata and soils

The map entitled "High Priority Protection Areas in Santa Clara County" will be deleted because it is an incomplete representation of areas in the county that would be excluded from consideration for the siting of facilities after application of several siting criteria intended to protect natural resources.

Additionally, a note has been added below the heading of "Water Quality Protection" in a new table entitled "Table 8-1: Hazardous Waste Facility Siting Criteria" in the revised Plan's Chapter 8, and on the Siting Map's legend, which reads:

"All applicants are required to obtain written confirmation from the Santa Clara Valley Water District stating whether or not the proposed site is in an area that may adversely impact water resources. Based on the SCVWD letter and other information obtained during the land use decision-making process, the proposed facility may be disallowed, further hydrogeological investigation may be required of the applicant, or, if the facility is allowed, appropriate environmental protection measures will be required."

- e. The additional policy that limits the County's responsibility to one regionally-sized facility:

Without this policy the County may be subject to siting as many types and sizes of hazardous waste facilities as deemed feasible by the private market. The intent of this policy is to provide regional planning guidance for needed regionally-sized hazardous waste management facilities.

This change would not be expected to result in an increased potential for a negative environmental impact because any such facility that is proposed would be subject to the siting criteria described in Chapter 8 of the Plan that would ensure that all facilities are located and constructed so as to pose a minimal impact on the environment.

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*IBM, San Jose*



# SITING MAP



AREAS WHERE THE FOLLOWING COMMERCIAL HAZARDOUS WASTE MANAGEMENT FACILITIES MAY BE ALLOWED:

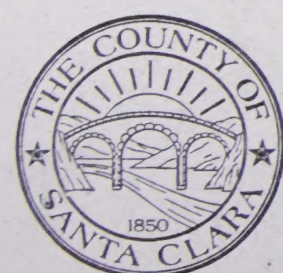
- Transfer & Storage
- Treatment
  - Neutralization
  - Precipitation
  - Filtration
  - Evaporation
  - Solidification & Stabilization
  - Incineration
- Recycling & Resource Recovery

NO GENERAL AREAS WERE IDENTIFIED AS BEING SUITABLE FOR THE SITING OF RESIDUALS REPOSITORIES\*

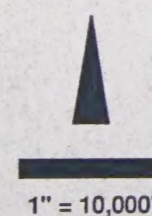
\*Preliminary application of the siting criteria for a residuals repository did not reveal any suitable sites in the county due to the strata and soils permeability criteria which requires that residuals repositories not be located in areas with permeability greater than 1X10<sup>-7</sup> cm/sec (CCR, Title 23, § 2510 (b) and (c)). This does not preclude the possibility that a site consistent with the Plan may be identified in the future.)

## NOTES

1. This map was prepared by overlaying available maps of siting criteria (i.e. dam and levee failure inundation areas, earthquake faults, areas of liquefaction, and areas of 15 percent or greater slope) on a base industrial zoning map. The individual overlay maps (1" = 2000') are available for review at the Santa Clara County Department of Planning and Development.
2. The siting map is provided for informational purposes only. It is subject to revision as new information becomes available. Local land use policies may limit the suitability of specific sites within the general areas identified on this map. The map does not vest any rights.
3. All applicants proposing to site a hazardous waste management facility within 3,000 feet of a known or suspected fault, as established by the Alquist-Priolo maps of the State or identified in the most recently available local maps or information, will be required to conduct a subsurface exploration to determine that there are no active faults within 200 feet of the portions of the facility where treatment, storage, or disposal is proposed to be conducted.
4. All applicants are required to obtain written comments from the Santa Clara Valley Water District (SCVWD) regarding the potential for a proposed facility to adversely impact water quality or resources. Based on the SCVWD letter and other information obtained during the land use decision-making process, the proposed facility may be disallowed, further hydrogeological investigation may be required of the applicant, or, if the facility is allowed, appropriate environmental protection measures may be required.



GENERAL AREAS THAT MAY MEET THE CRITERIA FOR HAZARDOUS WASTE MANAGEMENT FACILITIES



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disallowed, further hydrogeological investigation may be required of the applicant, or, if the facility is allowed, appropriate environmental protection measures may be required.



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